OUTLINES
OF THE
NATURAL HISTORY
OF
GREAT BRITAIN
AND
IRELAND.

CONTAINING

A ſyſtematic Arrangement and conciſe Deſcription of all the Animals, Vegetables, and Foſſils, which have hitherto been diſcovered in theſe Kingdoms.

By JOHN BERKENHOUT, M. D.

IN THREE VOLUMES.

VOL. III.

Comprehending the FOSSIL KINGDOM.

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VOL. III.

PREFACE.

IF our young Naturaliſts owe me any obligation, and if that obligation be in proportion to my trouble, they are more indebted to me for this ſmall volume than for the other Two. In my progreſs through the Animal and Vegetable Kingdoms I was happy in a faithful, ſkilful guide; the great Linnæus led the way, and I knew him too well ever to loſe ſight of him. But, on entering the Foſſil Kingdom, I found him not delighted with the country: We differed about the road, and ſo ſhook hands. How ſorry I was to part with ſuch a companion may be eaſily imagined, from the pleaſure and advantage I muſt have reaped in the former part of my journey.

Thus deprived of my old friend, I joined company with travellers of different nations, particularly with Mr. Cronſtedt and Mr. Wallerius, two Swediſh gentlemen of great abilities, our indefatigable Doctor Woodward, Mr. Da Coſta, and ſome others. I gathered ſome information from each; yet our diſputes were ſo frequent, that I was at laſt obliged to bid them farewell, and purſue my own path. Nevertheleſs, I acknowledge myſelf much obliged to Mr. Cronſtedt, and ſhould have been glad of Mr. Da Coſta's company a little farther: He took his leave abruptly.

The Foſſil Kingdom remains yet in a great meaſure uncultivated, owing chiefly to the ſlow progreſs of Chemiſtry, which, till very lately, was but little underſtood; and which, even now, is well underſtood but by very few Naturaliſts. The Reader will probably be ſurpriſed that I have reduced the *Genera* to ſo inconſiderable a number; nevertheleſs, if my Characteriſtics be ſufficiently obvious, he will find the ſtudy of Foſſils by this means greatly facilitated, and my book, conſequently, not intirely uſeleſs.

With regard to the Mineral Waters, it is neceſſary to inform the reader, that, in general, I have copied the authors which are moſt eſteemed. Theſe writers, however, appear to have been very deficient in chemical knowledge; except Dr. Falconer on the Bath Waters, and Dr. Lucas of Dublin. The latter is not infallible. Therefore, concerning the contents of theſe Waters, I do not report them as they really are, but as what our writers on this ſubject have ſuppoſed them to be; which ſuppoſitions, I am certain, are frequently wrong, being contrary to the eſtabliſhed laws of chemiſtry. This ſubject merits further enquiry.

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Vol. I.	Volume the firſt of this work.

I Divide-

I Divide the FOSSIL KINGDOM into Six Claſſes; viz.

I. EARTHS.

Inſipid, not ſoluble in pure water or oil; not inflammable, not ductile; preſerving their conſtitution in a ſtrong heat, but when fuſed become glaſs.

II. SALTS.

Sapid, ſoluble in water, and recoverable, by evaporation, in their priſtine angular form; not inflammable, nor ductile.

III. INFLAMMABLES.

Soluble in oil, but not in water; readily take fire, and are in a great meaſure conſumed.

IV. METALS.

Of all mineral bodies moſt ponderous; fuſible, but reſuming their original properties and a convex ſurface when cold, even after calcination, by the addition of phlogiſton.

Order I. *Metals* (properly ſo called) malleable.

II. Semi-metals: not malleable.

V. PE-

V. PETREFACTIONS.

Animals, or parts of animals, or vegetables changed into a foſſile ſubſtance.

VI. WATER.

Not inflammable; very little if at all, compreſſible; ſoluble in air; by heat rendered volatile, and extremely elaſtic; fluid when Fahrenheit's thermometer ſtands above 32 degrees, and ſolid when it is below that point.

THE

FOSSIL KINGDOM.

Fossils are natural bodies unorganized, and without ſenſation, formed beneath the ſurface of the earth.

CLASS I.

EARTHS.

Inſipid, not ſoluble in pure water or oil; not inflammable, not ductile; preſerving their conſtitution in a ſtrong heat, but when fuſed become glaſs.

HUMUS. *Mould.* Soft, but not viſcid, nor tenacious when moiſt. Particles heterogeneous, palpable, harſh, diffuſible in water. Not ſoluble in acids. Burns not to lime. Hardens not in the fire.

1. Communis. *Common Earth.* Covers generally the ſurface of this Globe. Blackiſh, or brown. *Wall.* 9. *Lin.* 54, 2. *Coſt.* 115. *Wall.* 267.

ARGILLA. *Clay.* Particles impalpable. Viſcid and plaſtic when moiſt.

Does not efferveſce with acids. Hardens in the fire. When pure not vitrifiable.

1. Apyra. *Porcelain Clay.* White, pure, dry, not fuſible; burns white, and becomes ſo hard as to ſtrike fire with ſteel. Iſle of Wight, &c. Cloyne, county of Cork. *Smith*, vol. I. p. 363. *Lin.* 52, 1, 3. *Cronſt.* 87. *Coſt.* 33.

2. Figulina. *Potters Clay*, or *Pipe Clay*. Mixt with phlogiſton and other ſubſtances in ſmall proportion. Unctious, white, or bluiſh, or aſh-colour, or black. Burns white, or pearl-colour. In various parts of theſe kingdoms. *Lin.* 52, 2. *Coſt.* 30, &c. *Cronſt.* 87. *Woodw.* tom. I. p. 4.

3. Communis. *Common Clay.* Aſh-colour, or red, or yellow, or brown, or bluiſh. Burns red; melts in the fire to a greeniſh glaſs. Uſed for making bricks, tiles, &c. in various parts of theſe kingdoms. *Lin.* 52, 9. *Cronſt.* 97. *Coſt.* 30, &c.

4. Bolus. *Bole.* Melts in the mouth; contains a large proportion of iron; grows blackiſh in the fire, and is then attracted by the magnet.

Red. Norfolk, &c. *Coſt.* 11, 86.

Green. Yorkſhire, Devonſhire, Cornwall. *Coſt* 28. *Cronſt.* 94. *Lin.* 52, 13.

Grey. In moſt of our collieries between the beds of coal. *Lin.* 6, 3. *Cronſt.* 98.

5. Fullonica. *Fuller's Earth.* Greeniſh-brown, compact, unctious, gloſſy when ſcraped or cut, froths and falls to pieces in water, burns brown and hard. Bedfordſhire, Surry, Kent. *Lin.* 5, 2, 7. *Coſt.* 69. *Cronſt.* 92.

6. Tripolitana. *Tripoli*, or *Rotten Stone.* Brown or yellowiſh; light, dry, harſh; colours the fingers, breaks eaſily in the mouth, acquires but little additional hardneſs in the fire. Uſed for poliſhing, &c. Derbyſhire; alſo near Cork in the river Lee, and in Glanmire river near the Bluebell. *Smith*, 382. *Coſt.* 87. *Lin.* 52. *Cronſt.* 96.

7. Indurata. *Soap-ſtone.* Hard, compact, unctious, white, often veined with purple or red, or ſometimes with green. Not diffuſible in water; marks a white line on boards, &c. Near the Lizard-point in Cornwall. *Coſt.* 36. *Lin.* 6, 4. *Cronſt.* 89.

CALX. *Lime Earth.* Soluble in acids, with the nitrous moſt perfectly, with efferveſcence. Being burnt, grows hot with water, and falls to a white powder. Not vitreſcent *per ſe*. Does not ſtrike fire with ſteel. With borax melts in the

fire

fire to a tranſparent colourleſs glaſs. Breaks in any direction.

1. Creta. *Chalk*. Compact, dry, harſh, friable, white, inſipid, diffuſible in water, adheres to the tongue and fingers. In large ſtrata in the ſouthern counties of England. *Lin.* 53, 1. *Cronſt.* 12. *Coſt.* 77.

Powder-chalk, or *Mineral Agaric*, or *Lac Lunæ*. A fine light, white powder, differing from common chalk in want of coheſion. Found in the fiſſures of ſtone quarries in Oxfordſhire, Northamptonſhire, &c. *Lin.* 53, 2. *Cronſt.* 12. *Coſt.* 83. *Woodw.* tom. I. p. 233.

2. Marmor. *Marble*. Hard, ſolid, opaque, naturally rough, but capable of a fine poliſh, unleſs decayed in the air: particles inviſible, impalpable. *Lin.* 2, 2. *Cronſt.* 13.

Yellow. Monmouthſhire, &c. and near Mitchels-town, in the county of Cork. *Smith*, vol. II. p. 376. *Coſt.* 197.

Black. With white veins and ſpots. Broad Helmſton and Torbay in Devonſhire. *Coſt.* 201.

. . . . With white ſea-ſhells, chiefly turbinated. Near Kilkenny in Ireland, in many parts of which kingdom it is uſed for chimney-pieces; alſo near

Church-town, Cork. *Smith*, vol. II. p. 375.

Black. Or bluiſh, intermixt with ſpar. Derbyſhire. *Short. Min. Wal.* vol. I. p. 24. *Coſt.* 149.

.... Without any admixture of white. Caldy Iſland, Wales. *Woodw.* tom. II. p. 6. Alſo near Church-town, Cork. *Smith*.vol. II. p. 372.

White. Veined and clouded with deep red. Near Plymouth, Devonſhire. *Coſt.* 206.

.... Streaked with pale-red. Near Kilarney, in Kerry, Ireland. *Coſt.* 206.

.... Glittering with ſpar, ſometimes containing ſhells. Derbyſhire, Wales, &c.

.... Variegated with purple, brown, yellow, or green. In ſeveral parts of the county of Cork. *Smith*, vol. II. p. 375. *Coſt.* 223.

Grey. Gloceſterſhire, Monmouthſhire, &c and at Carigaline, near Cork. *Smith*, vol. II. p. 376. *Coſt.* 194.

.... With ſparks of ſpar and flakes of entrochi. Near the lead-mines in Derbyſhire. *Coſt.* 153.

.... With ſmall white ſpecks. Four miles weſt of Mallow, in the county of Cork. *Smith*, vol. II. p. 377.

.... With white ſpots and veins. At Caſtlemary, in the county of Cork. *Smith*, vol. II. p. 377. *Coſt.* 210.

Grey. With large veins of white ſpar. Near Cork, in the road to Black-rock.

. . . . Greeniſh, with innumerable turbinated ſhells. *Woodw. Cat.* A. x. b. 60. *Coſt.* 235.

. . . Yellowiſh, with innumerable ſmall bivalve ſhells. Whichwood foreſt, Oxfordſhire. *Coſt.* 237.

Blue, frequently veined with white. Near Cork, in the road to Paſſage. Seems to be exactly the ſame marble with that generally uſed in Holland for ſteps on the outſide of their houſes, which they import from Namur, &c. *Coſt.* 198.

Lead colour, clouded with dark ſpots, and white or brown, or both. Kilcrea, eight miles from Cork; alſo at Black-rock. *Smith*, vol. II. p. 378. *Coſt.* 224.

. . . . With a purple tinge, variegated with yellow, white, aſh-colour, and purple. Whetton, in Derbyſhire. *Coſt.* 224.

Red. Pale-red, glittering, ſparry, interſperſed with black mica. *Coſt.* 157.

Brown. Dull reddiſh brown. Near Aſhburn, in Derbyſhire. *Coſt.* 157.

. . . . With white and red or purple veins. Devonſhire and Cornwall. *Coſt.* 224.

Brown. With innumerable entrochi, &c. Derbyſhire, in great abundance. *Woodw. Cat.* A. x. b. 61. *Coſt.* 235.

.... Dark, with numerous ſemicircular white ſtreaks, the edges of ſhells. Near Leith, in Scotland. *Coſt.* 237.

3. Lapis. *Limeſtone.* Texture leſs compact, not admitting a fine poliſh; particles viſible, granulated, or ſcaly. Colour various. In many parts of the three kingdoms. *Lin.* 2, 6. *Cronſt.* 15. *Coſt.* 152, &c.

4. Spatum. *Spar.* Breaks eaſily into rhomboidal, cubical, or laminated fragments, with poliſhed ſurfaces. *Cronſt.* 17, &c.

Common Spar. Rhomboidal, diaphanous or opaque, of various colours. In mines, &c. in Wales, Derbyſhire, &c. Ovens, near Cork. *Smith*, vol. II. p. 381. *Woodw.* tom. I. p. 151, &c.

Refracting Spar. Rhomboidal, ſhews objects ſeen through it double. In the lead mines in Derbyſhire, Yorkſhire, &c. *Ibid.*

Chryſtallized Spar. Diaphanous, pyramidal, or columnar. In mines, quarries, caverns, &c. in various parts of theſe kingdoms. *Woodw.* tom. I. p. 156.

Stalactitical Spar, *Iſicle*, or *Drop-ſtone.* Formed by the running or dropping of water containing a large propor tion of calcareous earth. Opaque, generally laminated, and in various forms from accidental circumſtances. Knareſborough in Yorkſhire, Ovens near Cork, &c. *Smith*, vol. II. p. 381. *Woodw.* tom. I. p. 155.

MARGA. *Marle.* Calcareous earth mixt with clay. Effervesces with acids whilſt crude, but not after being burnt. Hardens in the fire in proportion to the proportion of clay it contains. Vitreſcent *per ſe* into grey glaſs.

1. Friabilis. *Common Marle.* Diffuſible in water. Brown, or browniſh. Uſed for manure in many parts of England. *Cronſt.* 31 *Coſt.* 67. *Smith*, vol. II. p. 367.

2. Indurata. *Stone-marle.* In looſe pieces, grey, or white. In the beds of rivers. *Cronſt.* 32. *Coſt.* 136. *Lin.* 49, 1.

GYPSUM. *Gyps.* Calcareous earth ſaturated with vitriolic acid; therefore does not effervеſce with acids. Being heated falls to powder, which with water forms plaiſter, but without exciting heat during the mixture. Melts in the fire *per ſe*, though ſometimes with difficulty, into a white glaſs. Melted with borax, puffs and bubbles much. Burnt with phlogiſton, ſmells of ſulphur; and thus decompoſed, or by alkaline ſalts, its earth is found to contain ſome iron.

1. Pulverulentum. *Plaiſter Earth.* A dry, harſh, gritty, yellowiſh white powder; adheres to the tongue, but not to the fingers. Mixt with water forms plaiſter without previous heating. Clipſton quarry, in Northamptonſhire. *Woodw.* tom. I. p. 7, 40. *Cronſt.* 23. *Lin.* 53, 6. *Coſt.* 80.

2. Alabaſtrum. *Alabaſter.* Solid; particles viſible, glittering. Leſs hard than marble, but capable of being poliſhed. Not always ſaturated with acid, and therefore in ſome meaſure ſoluble in *aqua fortis.* White, or reddiſh, or yellowiſh. Derbyſhire, Cornwall, Somerſetſhire, &c. *Cronſ.* 23. *Lin.* 3, 3.

3. Commune. *Plaiſter Stone.* Texture ſcaly, or granulated; generally red or white; much ſofter than alabaſter, and incapable of a poliſh. Derbyſhire, Yorkſhire. *Cronſ.* 24. *Lin.* 3, 2.

4. Fibroſum. *Fibrous Plaiſter Stone.* Called fibrous talc. White. In plaiſter pits in Derbyſhire, Nottinghamſhire, &c. *Cronſ.* 24. *Lin.* 4, 1. *Coſt.*

5. Spatoſum. *Selenites.* Diaphanous, rhomboidal, laminated. Frequent in clay-pits, Oxfordſhire, Iſle of Sheppy, Nantwich in Cheſhire, &c. *Cronſt.* 24. *Lin.* 16. *Woodw.* tom. I. p. 67. tom. II. p. 10.

TALCUM. Will not ſtrike fire with ſteel, nor efferveſce with acids. Not diffuſible in water. In the fire very refractory *per ſe*, but fuſible with borax. Particles palpable, viſible, diviſible, flexible, elaſtic.

1. Mica. *Glimmer.* Particles laminated, ſcaly, ſhining, ſeparable, friable, ſemingly unctious.

Brown. With other foſſils in the compoſition of granites, &c.

Black. In maſſes of 4 or 5 inches diameter, in rivers in Yorkſhire. In gravel-pits in Northamptonſhire. *Woodw.* tom. I. p. 63, 64. tom. II. p. 8.

Gold-colour. In ſmall maſſes or in ſtones on the ſea-ſhore. *Woodw.* tom. I. p. 63.

Silver Mica. In maſſes and among the ſand on the ſea-ſhore. *Woodw.* tom. I. p. 61.

Greeniſh. In ſmall maſſes on Mendip hills, and on the ſhores in Yorkſhire, *Woodw.* tom. I. p. 62.

Grey. On the ſea ſhore. *Woodw.* tom. I. p. 62. 64.

Reddiſh. On the ſhores of Lincolnſhire, &c.

2. Aſbeſtus. *Aſbeſt.* Surface dull, uneven; texture fibrous. *Cronſt.* 112.

Mountain Flax. Grey; filaments long, ſilky, roundiſh, ſtraight, intire. In the Highlands of Scotland on the ſurface of the earth. *Lin.* 7, 1.

Mountain Leather. White, fibres broad, membranous. Highlands of Scotland.

Greeniſh Aſbeſt. Filaments interrupted or interwoven. In ſtrata of marble in the Iſle of Angleſea, &c. *Lin*. 7, 10. *Woodw*. tom. I. p. 77.

SAXUM. Opaque, rough, coarſe; particles viſible, heterogeneous; not laminated, breaking freely in any direction; will not ſtrike fire with ſteel, nor burn to lime; not ſoluble in acids.

1, Cos. *Sand Stone*, or *Free Stone*. Particles ſmall, conſiſting chiefly of quartz and mica, cemented by clay.

Portland Stone. White, or light grey, of a roundiſh grit, and glittering. Dorſetſhire. Brought frequently to London, and uſed in building. *Coſt*. 125. *Woodw*. tom. I. p. 16.

Purbeck Stone. Browniſh aſh-colour. Hard, heavy; texture not very compact; compoſed of an angular grit. Dorſetſhire. Uſed in London for building, &c.

Ketton Stone. Pale-brown, compoſed of incruſted granules. Heavy, and not very compact. Several Colleges in Cambridge are built with this ſtone. *Coſt*. 129.

Scythe ſtone. Pale brown, heavy, glittering, and in ſome degree friable.

Uſed for whet-ſtones. Derbyſhire, &c. *Coſt*. 133. *Woodw*. tom. I. p. 17.

Scotiſh Stone. Bluiſh, granulated, hard; heavy. Uſed for new-paving the ſtreets of London. In the king's park near Edinburgh, &c.

Red Sand Stone. Coarſe, deep brown-red, friable. Compoſed of cryſtalline grit, cemented by a ferruginous earth, often veined with black. Shropſhire, Hampſhire, alſo near Briſtol. *Coſt*. 139.

Purple Stone. Pale-purple, veined; compoſed of an angular grit, cemented by a cryſtalline matter, and ſpangled with mica. Near the ſea in Flintſhire. *Coſt*. 140.

Bath Stone. Yellowiſh white; particles minute; texture uniform, compact, without glitter; ſoft, ſo as to be eaſily wrought with the chiſſel by the hand into vaſes, &c. Near Bath, Somerſetſhire.

2. Granita. *Granite*. Compoſed chiefly of quartz, mica, and feltſpat; ſometimes of garnet, baſaltes, and indurated ſteatites. Particles viſible, diſtinct. So hard as generally to ſtrike fire with ſteel, and receive a good poliſh.

Black Granite, with a dark-green tinge. Frequent in the old pavement of the ſtreets of London, and on the ſea ſhore. *Coſt.* 273.

White Granite, or *Moor Stone.* White interſperſed with a few large black ſpots and cryſtalline quartz. Cornwall, Devonſhire, Ireland. *Coſt.* 273. *Woodw. Cat.* G. e. 3.

White and green. Down, Ireland. *Coſt.* 275.

Red Granite. Sometimes yellowiſh, generally interſperſed with black mica. Devonſhire. *Coſt.* 276.

Yellow Granite. Interſperſed with ſmall black ſpots. Found in ſmall maſſes on the ſhore near Morlin-well, in the county of Downe, Ireland. *Coſt.* 280.

Green Granite. Spotted with black. On the ſea-ſhore. *Coſt.* 280.

3. Breccia. *Conglutinated Stones.* Compoſed of pebbles of various kinds, irregularly diſpoſed, and cemented by various matter.

Pudding Stone. Yellowiſh, variegated with flints and pebbles of various colours, cemented by a jaſpery ſubſtance. *Cronſt.* 253. *Lin.* 12, 39.

Mill Stone. Compoſed of great variety of flints, pebbles, &c. cemented by a grey matter. Derbyſhire. *Woodw.* tom. I. p. 29.

4. Arena. *Sand.* Conſiſting of minute incoherent flints or ſtones of various colour, ſhape, ſize, and matter.

White. Glittering. Found tolerably pure in ſeveral parts of England.

Yellow. Found, near the ſurface, about Hampſtead and Highgate, and many other parts.

Brown. Woolwich, Black-heath, &c.

SHISTUS. *Slate.* Breaks invariably into laminæ or plates. Opaque, not flexible. Effects with ſteel, with acids, and with fire, various.

1. Niger. *Black Slate.* Surface hard and ſmooth, but not poliſhable. Will not ſtrike fire with ſteel. When written upon, the characters are black. In ſome parts of England and Wales, but not frequent. *Lin.* 1, 10. *Coſt.* 166.

Shale, or *Baſs*, or *Shiver*. Black, light, friable; rough unpoliſhed ſurface. Characters, when wrote on, white. Derbyſhire, in large ſtrata up to the day, and, in other counties, generally above the coal. *Lin.* 1, 3. *Coſt.* 167. *Wall. Spec.* 70.

Plate. Black, heavy, friable, ſmooth, gloſſy. Between the laminæ are generally diſcovered impreſſions of fern and other plants. Forms a ſtratum immediately above the pit-coal in ſeveral parts of England. *Coſt.* 168. *Wall. Spec.* 67.

2. Viridis. *Green Slate.* Smooth, ſoft, heavy, thin, not penetrable by water. Will not ſtrike fire with ſteel. Becomes purple when burnt. Characters white. In different parts of England and Wales. *Lin.* 1, 4. *Coſt.* 182. Alſo in great abundance near Cork in Ireland.

3. Purpureus. *Purple Slate.* Smooth, but without gloſs; hard, heavy, compact, compoſed of thin plates. Characters whitiſh, not penetrated by water. Sometimes ſlightly ſpangled. Will not ſtrike fire with ſteel. Does not change colour in the fire. In the northern counties of England frequent. *Coſt.* 175. Alſo in great abundance near Cork, forming huge rocks on the north ſide of the river; but in this variety the laminæ are neither even nor thin.

4. Ruber. *Red Slate.* Hard, heavy, ſtrikes fire with ſteel. Laminæ thick and uneven. Unalterable in the fire. Near Cork.

5. Fuſcus. *Brown Slate.* Pale-greeniſh brown, rough, coarſe, hard, heavy, of a ſandy texture, without brightneſs. Will not ſtrike fire with ſteel. Becomes friable by burning, but retains its colour. Burford in Oxfordſhire. *Coſt.* 144.

Pale brown, or *greyiſh*, or *whitiſh*. Hard, heavy, glittering with mica; burns whitiſh. *Coſt.* 144. 147. *Woodw.* *Cat.* A. b. 85. Common in the north of England.

Pale brown. Hard, heavy; texture compact but gritty, containing variety of ſhells, &c. Will not ſtrike fire with ſteel. At Stunsfield in Oxfordſhire, and at Charlwood near Bath. *Coſt.* 145, 146. *Plot. Oxf.* 77. *Woodw.* *Cat.* G. b. 4.—10.

6. Coeruleus. *Blue Slate.* Hard, heavy, ſonorous, ſmooth, compoſed of very thin plates eaſily ſeparable; not penetrable by water. Characters whitiſh. Will not ſtrike fire with ſteel. Burns brown. In many parts of England, Ireland, and Wales, particularly near Kendal in Weſtmoreland. Uſed for covering houſes. *Coſt.* 181. *Lin.* 1, 5. *Wall. Spec.* 66. Alſo at Carbery and near Kinſale in Ireland. *Smith*, vol. II. p. 373. Likewiſe at Denyball in Cornwall.

7. Cinereus. *Aſh-coloured* or *grey Slate.* Smooth, compact, light, hard; laminæ very thin. Not penetrable by water. Will not ſtrike fire with ſteel. Burns to a purpliſh brown. Carnarvonſhire, Cumberland, Ireland, &c. *Coſt.* 173.

Pale-bluiſh grey. Compact, coarſe, hard, heavy, ſmooth but not gloſſy. Becomes friable in the air. Generally ſhews impreſſions of plants. Forms a ſtratum above the coal in many parts of England,

land, &c. *Coſt.* 175. *Smith's Cork*, vol. II. p. 373.

Dead aſh colour. Light, rough, coarſe, friable, without the leaſt gloſs, of a ſandy texture, compoſed of very thin laminæ; burns whitiſh. In ſeveral parts of England. *Coſt.* 144.

8. Lapis Hibernicus. *Iriſh Slate.* Lead colour; writes on paper like black-lead. Dr. Hill ſays he extracted a conſiderable proportion of alum from this ſlate. If it had not been aſſerted by a perſon of the Doctor's known integrity, I would not believe a word of it.

FLUOR. Appearance ſparry or cryſtalline. Will not ſtrike fire with ſteel. Does not ferment with acids. Vitreſcent *per ſe*, tho' ſometimes refractory, but eaſily fuſible with borax, or calcareous or other earths. When gradually heated ſhines like phoſphorus; but its light vaniſhes before it becomes red-hot. Promotes the fuſion of ores. *Cronſt.* 108.

1. Cryſtallizatus. *Cryſtallized Fluor.* White, or blue, or purple, or green, or red. In iron and copper mines.

Sparry, but leſs regular than ſpar.

Irregular.

Cubic.

QUARTZUM. Does not efferveſce with acids. Strikes fire with ſteel. Does not after burning fall to powder either in the air or in water. When pure cannot be melted *per ſe*, but with alkaline ſalts moſt readily into glaſs. Texture ſolid, uniform; particles homogeneous, inviſible, impalpable. Breaks in various directions.

1. Cryſtallus. *Cryſtal.* Diaphanous, naturally hexagonal, columnar, pyramidal at one or both ends, but frequently rounded. *Luid.* 1.

Colourleſs. Found near Weſt Carbery. *Smith's Cork*, vol. II. p. 382. *Woodw.* tom. I. p. 31. 158.

Milky. Woodw. tom. I. p. 158.

Red. Woodw. tom. I. p. 160.

Brown. Woodw. tom. I. p. 160.

Yellow. Woodw. tom. I. p. 160.

Purple. Woodw. tom. I. p. 160.

Black. Woodw. tom. I. p. 160.

2. Silex. *Flint.* Semipellucid, detached, often ſomewhat ſpherical; breaks in convex and concave poliſhed fragments. Decays when expoſed to the air, and commonly ſurrounded by a rough cruſt.

Common Flint. Colour uniform, not ſtreaked or veined. Dark or light horn-colour or yellowiſh. Frequent in chalk pits, gravel-pits, and on the ſea-ſhore. *Cronſt.* 67. *Lin.* 11, 1.

Onyx. The hardeſt of this ſpecies, conſiſting of zones of different colours. *Woodw.* tom. I. p. 36. c. 192.

Agate. Clouded, or veined, or ſpotted, with different colours. *Woodw.* tom. I. p. 32.

3. Jaſpis. *Jaſper.* Opaque. Texture when broken like dry clay. Fragments not convex and concave. Leſs hard than flint, and melts more readily into glaſs. Does not decay in the air. Takes a fine poliſh. *Cronſt.* 69. *Lin.* 11, 14.

Sparry or *cryſtalliſed,* often rhomboidal. Generally mixt with other foſſiles in the compoſition of granites, porphyry, &c. *Cronſt.* 72. *Lin.* 5, 12. *Wall.* 125.

4. Granatus. *Garnet.* Diaphanous, dark-bluiſh red, ſpherical, with an indeterminate number of facets, or ſides, containing a ſmall portion of iron or tin. Frequent, though ſmall, in micaceous ſtones, particularly in Scotland. *Coſt.* on *Cronſt.* 84. *Wall.* vol. I. 223.

5. Baſaltes. *Shirl.* Opaque, ponderous, generally black or green, gloſſy, cryſtallized, priſmatical, of an indeterminate number of angles. Forming an immenſe rock called the Giants Cauſeway in Ireland, and in ſmall pieces in the tin-mines in Cornwall. *Cronſt.* 80. *Wall.* vol. I. p. 261. *Coſt.* 252.

CLASS II.

SALTS.

Sapid, ſoluble in water, and recoverable by evaporation in their priſtine angular form; not inflammable, nor ductile.

SAL ACIDUM. When moſt pure, fluid, and mixt with a conſiderable proportion of water. Taſtes ſour; changes blue vegetable juices red; diſſolves calcareous earth with effervefcence; unites violently with alkalis, with which it has the greateſt affinity, except with phlogiſton. A ſtronger attraction to zinc than to any other metal.

1. Vitriolicum. *Vitriolic Acid.* When mixt with the leaſt poſſible quantity of water, its ſpecific gravity is to water as 18 to 10. Diſſolves ſilver, tin, antimony, mercury, zinc, iron, copper, lead. United with calcareous earth forms gypſum; with argillaceous earth, alum; with phlogiſton, ſulphur; with metals, vitriol; with alkaline ſalts, neutrals. Precipitates all ſolutions in the nitrous and vegetable acids. With ſpirit of wine produces æther; with water generates heat; with

water and ſteel filings takes fire. Exiſts in native Glauber's ſalt; in metallic ſalts whoſe baſis is iron, copper or zinc; in alum, ſulphur, in various waters, and in the atmoſphere, but moſt frequently obtained from ſulphur or vitriol. *Pharm. Med.* 2d edit. p. 5. *Cronſt.* 129.

2. Muriaticum. *Acid of Sea-Salt.* When moſt concentrated is of a yellow colour. Specific gravity to water as 12 to 10. Diſſolves tin, lead, iron, copper, zinc, antimony. Mixt with the nitrous acid forms *aqua regia*, which diſſolves gold. With alkaline ſalts forms various neutrals; with calcareous earth *ſal ammoniacum fixum*. Generally obtained from common *ſalt*. May be diſunited from alkaline ſalts by the vitriolic acid. *Pharm. Med.* p. 9.

SAL ALKALI. Taſtes acrid, urinous. Unites with acids with violent efferveſcence. Changes blue vegetable juices green. With oil forms ſoap.

1. Fixum. *Fixed mineral Alkali*; *Natron* of the antients. Shoots readily into priſmatical cryſtals. Diſſolves every ſpecies of quartz forming glaſs. Falls to powder in the air. Promotes the fuſion of metals, and precipitates them when diſſolved in acids. With acids forms various neutrals, which ſee. Obtained from ſea ſalt, mineral waters, marine plants, and in conſiderable quantity from a white effloreſcence on walls

not expoſed to the weather. *Pharm. Med.* 142. *Lin.* 14.

2. Volatile. *Volatile mineral Alkali.* Differs in no reſpect from that obtained by diſtillation from animal and vegetable ſubſtances. Contained in moſt clays. *Cronſt.* 148.

SAL NEUTRUM. Compoſed of an acid and an alkaline ſalt; therefore will not effervеſce with either. Form regular cryſtalline.

1. Sal Glauberi. *Glauber's Salt.* Vitriolic acid and foſſile alkali. Cryſtals hexagonal. Soluble in an equal weight of water. Found in ſome mineral waters, but generally the produce of art. Fuſible in a moderate degree of heat. *Pharm. Med.* p. 15.

2. Sal Commune. *Common Salt,* or *Sea Salt.* Muriatic acid and fixt foſſile alkali. Cryſtals cubic. Obtained from ſea-water and from ſalt-ſprings in Cheſhire, Worceſterſhire, Hampſhire, Staffordſhire, Northumberland. *Pharm. Med.* p. 21. *Cronſt.* p. 139. *Lin.* 16. 1. 3. *Woodw.* tom. I. p. 170.

3. Sal Ammoniacum commune. *Common Sal Ammoniac.* Muriatic acid and volatile alkali. Cryſtals indeterminate. Mixt with common ſalt generates extream cold. Liquifies in the air. Soluble in vinou

ſpirits. Soluble in three times its own weight of water. Obtained by ſublimation from every ſpecies of ſoot. *Pharm. Med.* p. 22.

SAL METALLICUM. *Metallic Salt.* Metal diſſolved in the vitriolic acid; cryſtallized. Soluble in ſixteen times its weight of water.

1. Vitriolum Cœruleum. *Blue Vitriol.* Vitriolic acid and copper. Cryſtals depreſſed, rhomboidal, with twelve ſides. Taſte aſtringent, acrid, diſagreeable. Fuſible, and in a ſtrong fire calcinable. Generally the produce of art, but ſometimes native, diſſolved in Ziment waters near copper mines, particularly in the county of Wicklow in Ireland. *Pharm. Med.* p. 26. *Lin.* 18, 3. *Cronſt.* 131.

2. Vitriolum Viride. *Green Vitriol.* Vitriolic acid and iron. Cryſtals rhomboidal, ſhort, thick, pale-green, pellucid. Taſte aſtringent, ſweetiſh. Eaſily ſoluble in water, and calcinable in the fire. Generally artificial, but often diſſolved in mineral waters. *Pharm. Med.* p. 27. *Cronſt.* p. 130. *Lin.* 18, 1. *Woodw.* tom. 1. p. 171.

3. Vitriolum Album. *White Vitriol.* Vitriolic acid and zinc. Cryſtals, according to Linnæus, priſmatical, dodecaedral. Taſte aſtringent, ſweetiſh. In mines,

often mixt with copper and iron. *Cronſt.* 131. *Pharm. Med.* p. 28.

4. Arſenicum. *Arſenic.* White, volatile in the fire. Cryſtals priſmatical, octoedral. Soluble by boiling in water. Eaſily cryſtallized by ſublimation with phlogiſton, and ſometimes found native in a cryſtalline form. See *Arſenicum* as a metal.

SAL TERREUM. Vitriolic acid and earth, ſeparable by the interpoſition of an alkali.

1. Alumen. *Rock Alum.* Vitriolic acid and argillaceous earth. Cryſtals octoedral, pyramidal. Liquifies in the fire. Taſte exceſſively aſtringent. Soluble in fourteen times its weight in water. Obtained by art from ſtones of different kinds near Whitby in Yorkſhire. *Cronſt.* 133. *Pharm. Med.* p. 30. *Lin.* 17. *Woodw.* tom. I. p. 170.

Feather Alum. Reſembles white feathers. In ſmall quantities on decayed alumſtones. *Cronſt.* 133. *Lin.* 17. 1.

2. Sal Ammoniacum Fixum. *Fixt Sal Ammoniac.* Muriatic acid and calcareous earth. In ſea-water, and at the bottom of the pans at the ſalt-works. *Cronſt.* 27.

3. Sal Catharticum Amarum. *Bitter purging Salt,* or *Magneſia, Glauber's Salt,* or *Epſom Salt.* Vitriolic acid and magneſia alba. Cryſtals

hexagonal, priſmatical. May be decompoſed by an alkali. In the Epſom water, and in many other ſprings. *Pharm. Med.* p. 30. *Wall.* 339.

4. Selenites. Vitriolic acid and calcareous earth. Cryſtallizes in thin laminæ. Decompoſed by an alkali. Very frequent, in ſmall proportion, in mineral and in common ſpring water. See *Gypſum*, Numb. 5.

CLASS

CLASS III.

INFLAMMABLES.

Soluble in oil, but not in water; readily take fire, and are in a great meaſure conſumed.

BITUMEN. Mineral phlogiſton united with mineral acid and other foſſile ſubſtances.

1. Petroleum. *Foſſile* or *Rock Oil.* Highly inflammable, fluid, pellucid, fragrant, light, pale-brown, but expoſed to the air becomes thick and black. Miſcible with eſſential oils, but not with vinous ſpirits. Found floating on the water of certain ſprings in Perſia, Italy, and in England, &c. particularly at Wenlock and Pitchford in Shropſhire, Wigan in Lancaſhire, Libeſton in Midlothian, Scotland. *Sibald. Prodr.* part II. l. 4. c. 4. *Cronſ.* 152. *Pharm. Med.* p. 35. *Lin.* 21, 1, 2.

2. Electrum. *Amber.* Phlogiſton united with muriatic acid. Solid, hard, brittle, light; texture compact, uniform; particles homogeneous, inviſible. Takes a fine poliſh; fragrant when rubbed, and highly

electrical. Found in the earth, and on the ſea-ſhore, in nodules from half an inch to two inches in diameter.

Pale-yellow, perfectly pellucid. On the ſea-ſhore of Yorkſhire, Norfolk, &c. alſo in clay-pits near London.

Brown, tranſparent. In clay-pits in Leiceſterſhire. *Woodw.* tom. I. p. 168.

3. Gagas. *Jet.* Wood impregnated with the inflammable ſubſtance of pit coal. Black, ſolid, dry, opaque, light, capable of a fine poliſh, electrical. Texture evidently that of wood. Burns ſlowly with a white flame. Found in detached pieces in ſtrata of earth and ſtone in the northern counties, and in clay-pits near London. *Hill. Foſ.* 413. *Cronſ.* 263. *Lin.* 21. 8. *Brand. foſ. hant. fig.* 121. *Woodw.* tom. I. p. 167.

4. Lithantrax. *Coal.* Phlogiſton united with argillaceous earth and vitriolic acid. Black, ſolid, opaque, dry, brittle, gloſſy. Found in large ſtrata, ſplitting nearly in a horizontal direction.

Pit Coal. Friable. Newcaſtle, &c.

Stone Coal. Hard, heavy, brittle; ſplits in the fire, burns briſkly, and flames much. In the north of England, &c.

Cannel Coal. Bright, light, ſplits in any direction, does not colour the hands, and takes a good poliſh. *Woodw.* tom. I. p. 165.

Kilkenny Coal. Lights ſlowly, and burns almoſt entirely without ſmoke. Seems not to differ in the leaſt from the culm of Pembrokeſhire in Wales, when that is ſeparated from the coal-duſt with which it is mixt. Near Kilkenny in Ireland.

5. Turfa. *Turf.* Mould impregnated with bitumen, interwoven with roots of vegetables. Cut in the ſhape of bricks, and uſed for fuel in many parts of this kingdom. *Cronſt.* 264. *Lin.* 54, 6. *Wall.* 358.

SULPHUR. Phlogiſton united with a large proportion of vitriolic acid. Yellow; fuſible in a moderate degree of heat; burns with a blue flame; totally volatile in the fire. Not found native, or pure, in theſe kingdoms.

1. Pyrites. *Mundic.* Sulphur combined with iron. Pale-yellow, of a metallic appearance, not cryſtallized. Strikes fire with ſteel. In various mines. *Cronſt.* 155. *Lin.* 22, 5. *Wall.* 379.

2. Marcaſita. *Marcaſite.* Sulphur combined with iron, copper, &c. cryſtallized. Strikes fire with ſteel. Yellow, or white, or grey. *Cronſt.* 155. *Lin.* 22, 3. *Wall.* 384.

3. Molybdæna, *Black-lead.* Sulphur combined with iron and tin. Uſed for pencils, &c. Barrowdale, near Keſwick in Cumberland. *Cronſt.* 156. *Lin.* 25, 1. *Woodw.* tom. I, p. 185.

Sulphur is likewiſe found combined with other metals and ſemimetals ; which ſee.

CLASS IV.

METALS.

Of all mineral bodies, moſt ponderous, Fuſible, but reſuming their original properties and a convex ſurface when cold; even after calcination, by the addition of phlogiſton.

I. METALS, *properly ſo called.*

AURUM. *Gold.* Yellow. The heavieſt metal (viz. to water as 19640 to 1000.) and moſt ductile. Unalterable by fire. Soluble only in *aqua regia* and *hepar ſulphuris.* Amalgamates readily with quickſilver.

1. Nativum. *Gold-duſt* or *ſand.* Said to be found in ſmall quantity, in ſome rivers in Scotland. *Cronſt.* 167. *Lin.* 35, 1.

ARGENTUM. *Silver.* White. Specific gravity to water as 11,091 to 1000. Moſt ductile, except gold. Sonorous. Soluble in the nitrous and vitriolic acids, not in *aqua regia.* Unalterable in the fire. Eaſily amalgamates with quickſilver.

1. Mineralizatum. Mineralized with ſulphur and other metals. Frequent in moſt of our lead and copper ores, but in no great proportion.

STANNUM. *Tin.* White. Moſt eaſily fuſible, but leaſt ductile, and lighteſt of all metals. Soluble in *aqua regia*, vitriolic and muriatic acids. Unites with all metals and ſemimetals, rendering them ſonorous and brittle. Amalgamates eaſily with quickſilver. Specific gravity to water as 7,300 to 1000. Cornwall.

1. Nativum. *Native Tin.* Very rare. The exiſtence of native tin is generally denied; but the Royal Society is in poſſeſſion of an undoubted ſpecimen, ſent from Cornwall.

2. Cryſtallizatum. *Tin Cryſtals* or *Tin Grains.* Mineralized by an admixture of arſenical earth. Opaque, ſpherical, polygonal, gloſſy, heavy, yellowiſh or brown, or black. *Cronſt.* 181. *Lin.* 30, 1. *Wall.* 548. *Woodw.* tom. I. p. 201. tom. II. p. 30.

3. Amorphum. *Tin-ſtone.* Combined with an arſenical earth and ſome iron. Blackiſh-brown or yellowiſh, reſembling a common ſtone, opaque and very heavy. On the coaſt near Penroſe in Cornwall. *Cronſt.* 181. *Lin.* 30, 3. *Wall.* 550. *Woodw.* tom. I. p. 202.

4. Molybdæna. *Black-lead.* See Sulphur.

5. Granatus. *Garnet.* See Quartzum.

PLUMBUM. *Lead.* Bluiſh white when firſt cut or broken. Specific gravity to water as 11,350 to 1000. Leſs hard, leſs elaſtic, leſs tenacious, leſs ſonorous, than any other metal. Soluble in all acids and alkaline ſolutions. Fuſible before ignition, and eaſily calcined.

1. Galena. *Lead Glance.* Mineralized with ſulphur and a little ſilver. Opaque, bluiſh, gloſſy, compoſed of large or ſmall cubes. Contains a very large proportion of lead. In various parts of England. *Cronſt.* 186. *Lin.* 31, 3. *Wall.* 529. *Smith's Cork*, vol. II. p. 393. *Woodw.* tom. I. p. 211. tom. II. p. 27.

2. Stibiatum. *Antimonial Lead-ore*, or *Lead-trail.* Mineralized with ſulphur, antimony, and ſilver. Opaque, radiated, ſhining. *Lin.* 31, 5. *Woodw.* tom. I. p. 211.

3. Cryſtallinum. *Lead Cryſtals.* Diaphanous, priſmatical or pyramidal, of no determinate number of ſides, but moſt frequently hexagonal; or white, or yellowiſh, or greeniſh. Mendip, Somerſetſhire. *Cronſt.* 186. *Lin.* 31, 2. *Woodw.* tom. I. p. 214. N°. 58, 59, 132.

4. Spatoſum. *Lead Spar.* White or grey, often yellowiſh, without the leaſt metallic appearance. Near Keſwick, in Cumberland; alſo near Briſtol. *Wall.* 535. *Woodw.* tom. I. p. 214.

5. Calciforme. *Lead Ochre*, or *Native Ceruſſa.* A white powder ſometimes found on the ſurface of lead-glance. *Cronſt.* 184.

CUPRUM. *Copper.* Yellowiſh-red. Specific gravity to water as 9 to 1. Moſt ductile, except gold and ſilver. Moſt elaſtic, except iron. Moſt ſonorous. Soluble in all acids and alkaline ſolutions, oils and water. Requires almoſt as great a degree of heat as iron before it melts.

1. Nativum. *Native* or *Virgin Copper.* Solid, malleable; branched or fibrous, or foliated; generally adhering to other foſſile ſubſtances. Cornwall, Iſle of Man, &c. *Cronſt.* 190. *Lin.* 33, 2. *Wall.* 499. *Woodw.* tom. I. p. 195, 197. tom. II. p. 24.

Ziment Copper. Granulated, friable. Precipitated from the vitriolic acid by the immerſion of iron or otherwiſe. In the county of Wicklow, in Ireland. *Cronſt.* 190. *Lin.* 33, 1. *Wall.* 501.

2. Coeruleum montanum. *Mountain-blue.* Copper united with calcareous earth, diſ-

ſolved and precipitated from an alkaline menſtruum. Soluble in *aqua fortis* with effervefcence. In the mines in Derbyſhire, &c. *Coſt.* 104. *Cronſt.* 36, 190. *Lin.* 30, 4. *Woodw.* tom. I. p. 195.

3. Viride montanum. *Mountain-green.* Copper united with earth, diſſolved by an acid. In the copper mines of England and Ireland, and the Iſle of Man. *Coſt.* 106. *Cronſt.* 190. *Lin.* 50, 3. *Woodw.* tom. I. p. 197.

4. Rubrum. *Glaſs Copper Ore.* Hard, brittle, red or purple, or brown. Generally found with native copper. *Cronſt.* 191. *Lin.* 33, 9. *Woodw.* tom. I. p. 196.

5. Cinerum. *Grey Copper Ore.* Mineralized with ſulphur alone. Solid or diced. Soft ſo as to cut with a knife. *Cronſt.* 192. *Lin.* 33, 6. *Wall.* 510.

6. Pyrites. *Copper Pyrites,* or *Mundic.* Yellow or yellowiſh, or ſometimes greeniſh. Copper mineralized with iron, and frequently a ſmall proportion of arſenic; marcaſitical. Cornwall, &c. *Cronſt.* 193. *Lin.* 33, 4, 5, 7. *Wall.* 514. *Smith's Cork,* vol. II. p. 386. *Woodw.* tom. I. p. 179, 193, 198.

7. Albidum. *White Copper Pyrites,* Mineralized with ſulphur, iron, and a conſiderable proportion of arſenic. Texture compact.

Yel-

Yellowiſh-white. Heavy, rich, but ſcarce. *Cronſt.* 194. *Lin.* 32. 8.

FERRUM. *Iron.* Attracted by the magnet; moſt elaſtic; moſt ſonorous, except copper. Soluble in all acids and alkaline ſolutions, water and air. Moſt difficult of fuſion; leaſt malleable. Specific gravity to water as 8 to 1.

1. Ochra. *Iron Ochre.* Yellow, or brown. Iron which has been diſſolved in the vitriolic acid, and precipitated in form of a looſe powder or a friable maſs. In the fiſſures of iron mines in Dean Foreſt, &c. *Woodw.* tom. II. p. 1. *Cronſt.* 196. *Lin.* 50, 1. 49, 5. *Wall.* 478. *Smith's Cork,* vol. II. p. 368. *Woodw.* tom. I. p. 8. 230. Nº. 62.

2. Hæmatites. *Bloodſtone.* Hard, heavy, red, or brown, or grey; yielding a red powder, when rubbed. Contains a large proportion of iron, tho' not attracted by the loadſtone. Generally found in maſſes, convex on one ſide, and of a fibrous texture. Near Whitehaven, in Cumberland, &c. *Woodw.* tom. I. p. 228. *Cronſt.* 197. *Wall.* 469. *Lin.* 32, 2, 22, 23.

3. Cryſtallinum. *Cryſtalline Ore.* Compoſed of ſmall ſhining cubical or octoedral particles, brown, reſembling marcaſite. Not malleable, nor attracted by the loadſtone.

ſtone. *Wall. Spec.* 252. *Cronſt.* 197. *Lin.* 32, 2, 3. Foreſt of Dean, Langron in Cumberland. *Woodw.* tom. I. p. 229. Nº 60, 61. tom. I. p. 225, n. 16.

4. Selectum. *Common Iron Ore.* Solid, brown, or blackiſh. Yields a black powder when rubbed; is attracted by the magnet. *Cronſt.* 203. *Wall. Spec.* 254. *Lin.* 32, 4, 8. *Smith's Cork*, vol. II. p. 390. *Woodw.* tom. I. p. 227.

5. Cœruleſcens. *Bluiſh Ore.* Generally brown on the outſide. Hard and heavy; ſolid or ſcaly; attracted by the magnet; rich in iron, and eaſily melted. *Lin.* 32, 19. *Wall. Spec.* 256.

6. Magnes. *Magnet*, or *Loadſtone.* Mineralized by a ſmall proportion of ſulphur. Blackiſh, or grey, or brown. Solid or granulated. Attracts iron, and points north and ſouth. *Cronſt.* 202. *Lin.* 32, 27. *Wall. Spec.* 259. Mendip Hills, Somerſetſhire; Devonſhire. *Woodw.* tom. I. p. 234. tom. II. p. 21.

7. Micaceum. *Glimmer*, or *Eiſenman.* Mineralized with ſulphur. Refractory. Scaly, ſhining, brittle, dark grey. *Lin.* 32, 19. *Cronſt.* 203.

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8. Magneſia. *Manganeſe*. Blackiſh, radiated, ſhining; radii generally converging to a centre. Sometimes ſcaly. Friable, colouring the fingers. Not attracted by the magnet. Gives a violet-colour to glaſs. Mendip, Somerſetſhire. *Woodw.* tom. I. p. 234. *Cronſ.* 121. *Lin.* 25, 2. *Wall. Spec.* 264.

Iron is alſo found in the ores of other metals, and in mineral waters.

II. SEMI-METALS.

Not malleable.

VISMUTUM. *Biſmuth*, or *Tin-glaſs*. Yellowiſh-white; ſoft, yet brittle; texture laminated. Specific gravity to water as 9,700 to 1000. Eaſily fuſible; volatile in the fire. Soluble in the mineral acids, and in *aqua regia*. Amalgamates eaſily with quickſilver, and unites it ſo intimately with other metals, eſpecially lead, as to carry them through leather without ſeparation.

1. Nativum. *Native Biſmuth*. Solid in ſmall cubes, or ſuperficial like a cruſt on other bodies. Melts in the flame of a candle. Found with tin, cobalt and copper ores. *Cronſt.*

Cronſt. 211. *Lin.* 28, 1. *Wall. Spec.* 243.

2. Ochra. *Flowers of Biſmuth.* Generally yellowiſh, in form of an effloreſcence on various ores, &c. *Cronſt.* 211. *Lin.* 50, 7. *Wall. Spec.* 245.

3. Mineralizatum. *Biſmuth Ore.* Mineralized with ſulphur. Grey, of a radiated appearance, compoſed of thin ſquare laminæ, reſembling lead-glance. *Cronſt.* 212. *Lin.* 28, 2, 4. *Wall. Spec.* 244.

ZINCUM. *Zinc*, or *Spelter*. Bluiſh-white. Texture fibrous, or of parts reſembling flat pyramids. Specific gravity to water as 7 to 1. Melts eaſily, and burns with a yellowiſh-green flame, ſubliming in white ſmoke. Unites with all metals, except biſmuth, rendering them volatile. Soluble in all acids. Its filings are attracted by the magnet. Separable from copper by mercury.

1. Cryſtallinum. *Cryſtallized Zinc.* A pure calx of zinc. Grey, reſembling lead ſpar, or an artificial glaſs of zinc. *Cronſt.* 215. *Lin.* 27, 1.

2. Calaminaris. *Calamine.* A calx or earth of zinc, mixt with iron. Yellowiſh, or brown. Mendip, Somerſetſhire. *Cronſt.* 216. *Lin.* 27, 5. *Wall. Spec.* 248.

248. *Woodw.* tom. I. p. 184. tom. II. p. 19.

3. Rapax. *Blend.* Mixt with ſulphur and iron. Yellow or black, or brown or red; ſcaly, often ſemi-diaphanous, reſembling glaſs. *Cronſt.* 217. *Lin.* 27, 6, 8. *Wall. Spec.* 249.

4. Mineralizatum. *Ore of Zinc.* Mineralized with ſulphur and iron. Of a metallic appearance; bluiſh-grey, ſcaly, or cubical. *Cronſt.* 216. *Lin.* 27, 3. *Wall. Spec.* 247.

ANTIMONIUM. *Antimony.* White, like ſilver. Texture fibrous. Brittle. Specific gravity to water as 7,500 to 1000. Volatile in the fire. Volatilizing other metals, except gold. Soluble in ſpirit of ſalt, and in *aqua regia*, from the laſt of which it may be precipitated by water. If previouſly melted with lime, it will amalgamate with mercury. Prevents iron from being attracted by the magnet.

1. Striatum. *Striated Antimonial Ore.* Mineralized with ſulphur. Bluiſh-grey, ſhining, ſtriated, and ſcaly. Melts in the flame of a candle. *Cronſt.* 222. *Lin.* 26, 3. *Wall. Spec.* 238. Cornwall, Flintſhire. *Woodw.* tom. I. p. 184. tom. II. p. 20.

2. Cryſtallizatum. *Cryſtallized Antimony*. Striated within, but externally of a cryſtalline appearance. *Wall. Spec.* 241. *Cronſt.* 222. *Lin.* 26, 2. *Woodw.* tom. I. p. 184. Cornwall.

3. Rubrum. *Red Antimonial Ore*. Mineralized with ſulphur and arſenic. Alſo ſtriated; but its fibres finer than either of the preceding ſpecies. *Cronſt.* 223. *Lin.* 26, 4. *Wall. Spec.* 242.

ARSENICUM. *Arſenic.* Originally the colour of lead; but being expoſed to the air turns yellow, and then black. Texture laminated. Extremely volatile in the fire, riſing in white ſmoke, and ſmelling like garlick. Yields a regulus on being melted with potaſhes and ſoap; or by ſublimation, mixt with phlogiſton. Soluble in acids, and even in water by boiling. Unites with all metals. Specific gravity of this regulus to water as 8,308 to 1000.

1. Nativum. *Native Arſenic.* Soft as black lead, compoſed of hemiſpherical laminæ. *Cronſ.* 226. *Lin.* 23, 1.

2. Calciforme. *White Arſenic.* In form of a white powder, ſometimes cryſtalline. *Cronſt.* 226.

3. Auripigmentum. *Orpiment.* Mixt with ſulphur. Yellow or greeniſh, or red; foliated,

liated, ſhining. *Cronſt.* 227. *Lin.* 22, 2, 4.

4. Mineralizatum. *White Mundic*, or *White Pyrites*, or *Marcaſite.* Mineralized with ſulphur and iron. Texture irregular, or cubical, or priſmatical. *Cronſt.* 228. *Lin.* 23, 5, 6.

Arſenic is alſo diſcovered in tin grains, lead ſpar, cobalt ore, copper ore, antimony, &c.

COBALTUM. *Cobalt.* Whitiſh-grey. Hard and brittle, not ſhining. Fixt in the fire. Its calx tinges glaſs deep blue. Soluble in the vitriolic and nitrous acids, and in *aqua regia*, tinging them red. Will not unite with biſmuth alone; nor amalgamate with quickſilver. Specific gravity to water as 6 to 1.

1. Calciforme. *Black Cobalt.* Mixt with iron without arſenic. Either friable in form of an ochre, or a ſlag hard and gloſſy. *Cronſt.* 231. *Lin.* 29, 4.

2. Ochra. *Cobalt Ochre*, or *Cobalt Flowers.* Mixt with the calx of arſenic. Pale red, or yellowiſh. An effloreſcence on cobalt ores. *Cronſt.* 232. *Lin.* 50, 8. *Wall. Spec.* 235.

3. Arſenicale. *Cobalt Ore.* Mineralized with arſenic and iron. Solid, reſembling ſteel, or cryſtallized. *Cronſt.* 232. *Lin.* 29, 2. *Wall. Spec.* 231.

4. Cryſtallinum. *Cryſtalline Cobalt Ore.* Mineralized with ſulphur, iron, and arſenic. Reſembles the laſt ſpecies, but of a lighter colour. *Cronſt.* 234. *Lin.* 29, 1. *Wall. Spec.* 234.

5. Niccolum. *Copper-nickel.* Mineralized with ſulphur, arſenic, and iron. Reddiſh-yellow, reſembling copper. *Cronſt.* 238. *Lin.* 33, 19. *Wall. Spec.* 229.

CLASS

CLASS V.

PETREFACTIONS.

Animals, or parts of animals or vegetables, changed into a foſſile ſubſtance.

HELMINTHOLITHUS. *Vermes.* Claſs VI. vol. I. *Lin. Gen.* 41.

1. Ammonita, or Cornu Ammonis, or Nautilus. *Serpent Stone.* Flat, ſpiral, repreſenting a worm or ſmall ſerpent, coiled up; of various dimenſions, and variouſly ſtriated; ridged and ſtudded. Found frequently in ſtrata of earth and ſtones; alſo on the ſea-ſhore. Whitby, in Yorkſhire; Pyrton Paſſage, in Glocesterſhire; Stoke, in Somerſetſhire. *Wall. Spec.* 374, 387. *Woodw.* tom. I. part ii. p. 24.

2. Anomites. . . . . Bivalve; one valve gibbous, and often perforated at the baſe; the other plane, and leſs. Hinge without teeth. Found in great abundance in various parts of England; particularly at Sherborne, in Gloceſterſhire. Vol. I. p. 200. *Wall. Spec.* 397. *Luid.* cap. 14.

14. *Woodw.* tom. I. part ii. p. 45 to 51.

3. Gryphites. . . . . Bivalve, oblong, ſomewhat reſembling a boat, but narrow, and remarkably curved upwards at one end; the other valve plane. Vol. I. p. 200. *Wall. Spec.* 396. *Luid.* cap. 9. *Liſt. Angl.* lib. iv. fol. 45. In chalk-hills, &c.

4. Judaicus. . . . . Suppoſed to be ſpines of the Echinus; reſembling an olive or ſmall cucumber, with a ſhort ſtem; ſmooth, or ſtriated, or ſtudded. Found in many parts of England; particularly in the chalk-pits in Kent. *Wall. Spec.* 400. *Luid.* cap. 16. *Plot Oxf.* tab. 6.

5. Echinites. . . . . Roundiſh, reſembling a button; frequently flinty, ſparry, or cretaceous; with tubercles and lines regularly diverging from the center, with marks of an aperture above and beneath. Surry, Eſſex, Kent, Middleſex. Vol. I. p. 195. *Wall. Spec.* 399. *Luid.* cap. 15. *Woodw.* tom. I. part ii. p. 64. In chalk and gravel pits.

6. Aſtrion. *Sea Star.* Minute, reddiſh white, in form of a ſtar or wheel, with four or five radii; ſomewhat convex in the center. Detached joints of the next ſpecies. In chalk-pits, &c. Vol. I. p. 195. *Plot Oxf.* 85. n. 16. *Wall. Spec.* 356.

7. Aſteria columnaris. .... Cylindrical, but pentangular; generally about an inch long, and the thickneſs of a quill; often crooked, with a ſtar of five radii at each extremity. In various parts of England and Wales. Near Marſton-truſſel, in Northamptonſhire; near Whitton, in Lincolnſhire; Sherborne, in Glouceſter-ſhire; Shughborough, in Warwickſhire; PyrtonPaſſage, &c. *Lin. Syſt. Nat.* p. 1288, n. 5. *Wall. Spec.* 359. *Luid* cap. 17. *Plot Oxf.* tom. II. fol. 2, 3. *Morton Northamp.* p. 239. *Woodw.* tom. I. part II. p. 80.

8. Entrochus. .... Cylindrical, generally about an inch long, ſometimes much leſs, and ſometimes three inches; compoſed of ſeveral flat, round joints, with radii on each diſk, and perforated through the middle. Stainton, in Cumberland; in the river near Moreland, in Weſtmoreland; Mendip, Somerſetſhire; Stone Quarry, near Maſk, in Yorkſhire; King's Weſton, Glouceſterſhire. *Luid*, N°. 1133. *Wall. Spec.* 357. *Syſt. Nat.* p. 1288. *Woodw.* tom. I. part II. p. 78.

9. Belemnites. .... Cylindrical, but conical at one, ſometimes at both ends; ſmooth; generally about the length and thickneſs of a finger, with a conical cavity at the baſe, which cavity is often filled with a nucleus, called alveolus. When broken, appears to be compoſed of longitudinal fibres, with others from the centre to the

circumference. In various ſtrata, particularly lime-ſtone, in many parts of England and Wales. *Syſt. Nat.* p. 1295. and vol. III. p. 170. *Wall. Spec.* 355. *Luid.* cap. 23. *Woodw.* tom. I. p. 106.

10. Tubiporus. . . . . A congeries of coralline tubes, parallel or variouſly curved; found frequently looſe in different ſtrata, and often immerſed in ſtone. On the ſhore near Sunderland, in the biſhopric of Durham; Yorkſhire, &c. *Syſt. Nat. Gen.* 336. *Luid.* cap. 17. *Wall. Spec.* 330. *Woodw.* tom. I. p. 130, 132. tom. II. p. 10.

11. Madreporus. Coral, branched, with ſtars at the extremity of each branch. Broadwell Grove, Gloceſterſhire, &c. *Syſt. Nat.* p. 1272. *Wall. Spec.* 328. *Luid.* cap. 2. *Woodw.* tom. I. p. 131.

12. Millepora. Coral, branched, with the ſurface and extremities punctured, as if pierced with the point of a needle. Near Dudley, Staffordſhire, &c. *Syſt. Nat.* p. 1282. *Wall. Spec.* 329. *Luid.* cap. 2. Vol. I. p. 208. *Woodw.* tom. I. p. 130.

13. Aſtroites. *Star Stone.* Coral, ſolid, texture tubular, of various ſhape, often reſembling a muſhroom; ſurface covered with ſtars, which are the extremities of the tubes of which it is compoſed. Glroceſterſhire, Northamptonſhire, &c. In

gravel-pits. Near Glanmire river, Cork, *Smith*, vol. II. p. 381. *Luid.* n. 160. *Woodw.* tom. I. p. 142.

14. Trochus. *Top-Shell.* Single, ſpiral, ſubconic; apertures ſomewhat angular, or oval; columella oblique. *Syſt. Nat. Gen.* 326. Vol. I. of this work, p. 203. *Brand. foſ. hant.* fig. 1, 2, 3, 4, 5, 6. *Luid.* cap. 7. *Wall. Spec.* 377. *Woodw.* tom. I. part ii. p. 31.

15. Turbo. *Screw-Shell.* Single, ſpiral, ſolid; aperture ſmall, orbicular, contracted, entire. Vol. I. 204. *Syſt. Nat. Gen.* 357. *Brand. foſ. hant.* fig. 7, 8, 27, 47, 48, 49, 50. *Luid.* p. 20.

16. Dentalium. *Tooth-Shell.* Single, tubular, tapering to a point, ſtraight or nearly ſo, pierced at each end. *Syſt. Nat.* p. 1263. *Wall. Spec.* 373. *Brand. foſ. hant.* fig. 9, 10, 11. *Woodw.* tom. I. part ii. p. 23.

17. Serpula. . . . . Single, tubular, cylindrical, almoſt ſtraight, ſmooth. *Syſt. Nat.* p. 1264. *Brand. foſ. hant.* fig. 12. *Woodw.* tom. I. part ii. p. 37.

18. Murex. . . . . Single, ſpiral; aperture oblong, ending in a long ſtraight beak or canula. *Syſt. Nat.* p. 1213. *Brand. foſ. hant.* fig. 13, 17, &c. p. 2.

19. Buccinum. . . . . Single, ſpiral; the firſt volution much larger than the reſt;

aperture oblong, ending in a ſhort dexter canula. *Syſt. Nat.* p. 1196. *Brand. foſ. hant.* fig. 14, 15, 16, 18, 19, 20, 43, 56, 63, 71. *Woodw.* tom. I. part ii, p. 36, 78.

20. Conus. . . . Single, convoluted, turbinated; aperture long, narrow, plain, baſe entire; columella ſmooth. *Syſt. Nat.* p. 1165, *Brand. foſ. hant.* fig. 21, 22, 24.

21. Voluta. . . . . Single, ſpiral, ſub-cylindrical; aperture long.

22. Bulla. . . . . Single, convoluted, oblong or oval, ſmooth; aperture long, narrow; baſe entire; columella oblique. *Syſt. Nat.* p. 1181, *Brand. foſ. hant.* fig. 29, 61, 75.

23. Strombus. . . . . Single, ſpiral; aperture with the lip generally dilated, ending in a ſiniſter canula. *Syſt. Nat.* p. 1207. *Brand foſ. hant.* fig. 42, 64 to 69, 76. Columella often plicated and ſpinous.

24. Helix. *Snail.* Single, ſpiral, thin, brittle; aperture contracted, lunated on the inſide, ſubrotund. Vol. I. p. 204. *Syſt. Nat.* p. 1241. *Brand. foſ. hant.* fig. 57, 58, 59, 60. *Woodw.* tom. I. part ii, p. 108.

25. Oſtrea. *Oiſter,* and *Scallop.* Bivalve, inequivalve. Hinge without teeth, with an oval cavity. *Vulva anuſve nulla.* Tranſ-

verſe ſtriæ. Vol. I. p. 200. *Syſt. Nat.* p. 1144. *Brand. foſ. hant.* fig. 83, 88, 107. *Luid.* cap. 8, &c. *Woodw.* tom. I. part ii. p. 38, 42. tom. II. p. 40. Glouceſterſhire; Berkſhire near Reading; Woolwich, Kent; Oxfordſhire; Northamptonſhire.

26. Chama. Bivalve, thick; hinge a gibbous callus inſerted in an oblique groove. *Lin. Syſt. Nat.* p. 1137. *Brand.* fig. 84. 85, 86, 87, 100.

27. Tellina. Bivalve. In the fore part of one ſhell a convex, in the other a concave fold. Hinge of three teeth. Gloceſterſhire. Vol. I. p. 198. *Syſt. Nat.* p. 1116. *Brand. foſ. hant.* fig. 89, 102. *Woodw.* tom. I. part ii. p. 61.

28. Venus. . . . . Bivalve, anterior margin incumbent. Hinge with three teeth. Vulva and anus diſtinct. Vol. I. p. 199. *Syſt. Nat.* p. 1128. *Brand. foſ. hant.* fig. 90, 91, 93, 94, 104, 105.

29. Cardium. *Cockle.* Bivalve, equivalve, with two middle teeth, alternate; lateral teeth remote, inſerted. Vol. I. p. 198. *Syſt. Nat.* p. 1121. *Brand foſ. hant.* fig. 92, 96, 98, 99. Heart-ſhaped. Claypit at Richmond in Surry; Shereborn, Gloceſterſhire; Harwich Cliff; Shooter's-Hill; and in huge maſſes of grey lime-ſtone near Caſtle Saffron in the

county of Cork. *Smith*, vol. II. p. 374. *Woodw.* tom. I. part ii, p. 53.

30. Mya. . . . . Bivalve, open at one end; hinge with a broad thick tooth, not let into the oppoſite ſhell. Vol. I. p. 197. *Syſt. Nat.* 1112. *Brand. foſ. hant.* fig. 95. *Liſt. Angl.* tom. II. f. 30.

31. Area. . . . . Bivalve, equivalve; teeth of the hinge numerous, acute, alternate, inſerted. Harwich Cliff; Shotover hill, Oxfordſhire; various parts of Glouceſterſhire. *Lin. Syſt. Nat.* p. 1140. *Brand. foſ. hant.* fig. 97. 101. 106. *Woodw.* tom. I. part ii. p. 52.

32. Solen. . . . . Bivalve, oblong, open at each ſide; hinge with a ſingle or double conic bent tooth, not inſerted in the oppoſite valve. Vol. I. p. 197. *Syſt. Nat.* p. 1113. *Brand. foſ. hant.* fig. 103. *Woodw.* tom. I. part ii. p. 63. In many parts of Gloceſterſhire.

33. Mytilus. *Muſcle.* Bivalve, equivalve, oblong, rough; hinge without teeth, diſtinct, with a ſubulated hollow longitudinal line. In various parts of Gloceſterſhire. Vol. I. p. 201. *Brand. foſ. hant.* fig. 124. *Syſt. Nat.* p. 1155. *Luid.* cap. 8. *Smith's Cork*, vol. II. p. 380. *Woodw.* tom. I. part ii. p. 58. 62.

34. Patella. *Limpet.* Shell ſingle, ſubconic, not voluted. In ſtone quarries in Gloceſterſhire,

ſhire, Harwich Cliff, &c. but very rare. Vol. I. p. 207. *Woodw.* tom. I. part ii. p. 23. *Wall. Spec.* 370.

35. Cypræa. A ſingle ſhell, involuted, oval, obtuſe, ſmooth; aperture dentated, longitudinal. Vol. I. p. 202. *Syſt. Nat.* 1172. *Woodw.* tom. I. part ii. p. 35. §. 3. In a clay-pit at Richmond, Surry.

36. Pholas. Bivalve, with one or more irregular ſmall valves at the hinge, which is recurved. Vol. I. p. 196. Harwich Cliff. *Woodw.* tom. I. part ii. p. 63.

PHYTOLITHUS. *Vegetables.* Vol. II.

1. Plantæ. *Graſs, Reeds, Horſetail,* &c. Found frequently in the black ſlate called plate, immediately above the pit-coal, in various parts of England. See Shiſtus. Alſo in detached nodules. *Lin.* 42, 1. *Brand. foſ. hant.* fig. 122. *Woodw.* tom. I. part ii. p. 10, 11.

2. Filices. *Ferns.* Found frequently in the black ſlate (ſee Shiſtus) above the pit-coal, at Newcaſtle and in other parts of England. *Lin.* 42, 2. *Luid.* cap. 3. *Woodw.* tom. I. part ii. p. 9, 12.

3. Lithoxylon. *Petrefied wood.* Found buried in the earth, and ſometimes in lakes, as in Lough Neagh in Ireland. *Lin.* 42, 4. *Luid.* cap. 4. *Woodw.* tom. I. part

ii. p. 20. Harwich Cliff, *Woodw.* tom. II. p. 57.

4. Rhizolithus. *Roots of trees and plants.* Found buried in the earth. *Lin.* 42, 3. *Woodw.* tom. I. part ii. p. 18.

5. Lithophyllum. *Leaves of trees*, particularly Oak; found petrefied or incruſted in water impregnated with calcareous matter; as at Knaresborough in Yorkſhire, &c. Alſo impreſſed in ſtone. *Lin.* 42, 5.

6. Carpolithus. *Fruits*, particularly impreſſions of the cones of pines, hazel, oak. *Lin.* 42, 7. *Woodw.* tom. I. part ii. p. 16, 21. tom. II. p. 92.

ZOOLITHUS. *Mammalia.* Vol. I. Claſs I.

1. Cervi. *Stags horns*, particularly of the mouſe-deer, often found buried in the ground in ſome mountains in England and Ireland. *Woodw. Meth.* 124. *Cat.* tom. I. part ii. p. 86.

2. Elephantis. *Elephants tuſks*, grinders, bones, &c. *Woodw. Meth.* 124. *Cat.* part ii. p. 86.

3. Turcoſa. *Bone* tinged green by copper, found in copper mines in Cumberland. *Woodw.* tom. I. part ii. p. 87.

4. Os. *Animal bones. Brand. foſ.* fig. 118, 119, 120,

120, 121. *Woodw.* tom. I. part ii. p. 87.

AMPHYBIOLITHUS. *Amphibia.* Vol. I. Claſs III. *Lin. Syſt. Nat.* Vol. III. gen. 38.

1. Gloſſopetræ. *Sharks teeth.* Somewhat reſembling a tongue with the root, or like the head of an arrow; black, or bluiſh, or brown, from half an inch to four inches in length, poliſhed. Found on the Kentiſh coaſt, alſo in ſtrata of clay at Richmond in Surry, at Harrow on the Hill, at Highgate, Iſlington, &c. *Luid.* cap. 19. *Brand. foſ. hant.* fig. 111, 112, 113, 114, 115. *Woodw.* tom. I. part ii. p. 83. Found alſo at Whitney in Oxfordſhire.

2. Plectronites. *Cock Spurs.* The teeth of an unknown fiſh. Conical, ſharp-pointed, without root, often bent; from a quarter of an inch to two inches long; or brown, or grey, or black, poliſhed. Frequently found in ſtone quarries in many parts of England. *Luid.* cap. 19. *Woodw.* tom. I. part ii. p. 84.

ICHTHYOLITHUS. *Fiſhes.* See Vol. I. Claſs VI.

1. Totalis. Impreſſion of an intire flat fiſh found in blackiſh ſlate in Wales. *Luid.* Ep. I. tab,

tab. 22. fig. 2. *Lin. Syſt. Nat.* vol. III. gen. 39, 1.

2. Bufonites. *Molares of the Sea-wolf.* Vol. I. p. 68. Uſually roundiſh and hollowed like a cup, from the ſize of a ſmall pea to near an inch in diameter; black, or grey, or brown, ſometimes variegated, always finely poliſhed. *Wall. Spec.* 350. *Luid.* cap. 20. In various parts of England, particularly near Whitney in Oxfordſhire. *Woodw.* tom. I. part ii. p. 84.

3. Siliquaſtra. *Foſſile Pods.* Suppoſed to be the bony palates of different fiſhes, often reſembling half the pod of the lupine, or other leguminous plant, filled with ſtony matter, ſometimes extremely minute, and ſometimes near two inches long; or brown, or black, or bluiſh. Frequently found in ſtone quarries near Shereborn in Glouceſterſhire, Whitney in Oxfordſhire, Grafton in Northamptonſhire, Farrington in Berkſhire, &c. *Brand. foſ. hant.* fig. 116, 117. *Luid.* n. 1440. *Woodw.* tom. I. part ii. p. 85.

4. Vertebra. Vertebræ of fiſhes of various genera, often found in pits and quarries in different parts of the kingdom, particularly at Richmond in Surry; alſo on the cliffs of Sheppy Iſland, Pyrton Paſſage, &c. *Luid.* cap. 22. *Brand. foſ. hant.*

fig. 108, 109, 110. *Woodw.* tom. I. part ii. p. 82.

ENTOMOLITHUS. *Inſects.* Vol. I. Claſs V. p. 85.

1. Cancri. *Crabs.* Claws or parts of claws, found in pits, &c. in ſeveral parts of England. *Luid.* cap. 18. Two ſmall crabs found in the cliffs at Folkſtone near Dover. *Woodw.* tom. I. part ii. p. 81.

GRAPTOLITHUS. Stones on which various figures are depicted by ſome foſſile fluid or vapour.

1. Dendrites. Repreſenting ſhrubs, or plants, or moſs. On various ſtones, ſlates, and flints, found in different parts of England, particularly on a whitiſh ſtone in Sella Park in Cumberland. *Woodw.* tom. I. p. 239.

CLASS

CLASS. VI.

WATER.

Not inflammable; very little, if at all, compreſſible; ſoluble in air; by heat rendered volatile and extremely elaſtic; fluid when Fahrenheit's thermometer ſtands above 32 degrees, and ſolid when it is below that point.

PURE or COMMON WATER. Pellucid, colourleſs, inodorous, inſipid. Diſſolves ſalts, gums, mucilages. Miſcible with vinous ſpirits. Specific gravity to gold as 1000 to 19,640.

1. *Dew.* Suppoſed to be the lighteſt and moſt pure.

2. *Rain.* Next to dew in purity; it is nevertheleſs impregnated with variety of heterogeneous matter, particularly calcareous earth and ſome neutral ſalts. *Berlin Mem.* An. 1751. p. 131.

3. *Snow, Hail, Ice.* Equally pure, if not more ſo, than rain-water; its contents nearly the ſame.

4. *Spring-water.* Differently impregnated, according to the ſoil through which they paſs,

with ſelenites, earth, and other foſſile matter.

5. *River-water.* Beſides foſſile impregnations, contains great variety of animal and vegetable ſubſtances.

6. *Pond-water.* Contains moſt animal and vegetable matter; therefore moſt liable to putrefaction, and conſequently leaſt fit for uſe.

ALKALINE WATER. Impregnated with foſſile alkali *per ſe.* Effervesces with all acids; changes ſyrup of violets and other vegetable blues to green; precipitates ſolutions of calcareous earths in acids; and of ſal ammoniac or alum in water; becomes opaque and white with ſolutions of ſilver, lead, or mercury, in the nitrous acid; precipitates iron from the vitriolic or nitrous acid.

1. Clifton, *Oxfordſhire.* Limpid, with very little taſte. A gallon yields about 70 grains of reſiduum. Contains, beſides foſſile alkali, a ſmall proportion of calcareous earth, and another ſalt, probably *ſal cath. amar. Rutty. Syn.* p. 429. *Short,* vol. II. p. 133. *Monro,* vol. I. p. 82.

2. Glaſſonbury, *Somerſetſhire.* Contains a ſmall proportion of alkali and ſome ſea-ſalt. A gallon yields about 30 grains of reſi-

duum by evaporation. *Rutty*. *Monro*, vol. I. p. 84.

3. Tilbury, *Eſſex*. Not perfectly limpid at the well. Curdles with ſoap, but not with milk. Turns milky when boiled, but rendered clear by acids. Contains much air, foſſile alkali, and calcareous earth. A gallon yields on evaporation about 200 grains of reſiduum. *Rutty*. *André*. *Monro*, vol. I. p. 78.

Ireland.

4. St. Bartholomew's Well, *Cork*. Mixes uniformly with ſoap. A gallon yields by evaporation about 24 grains of reſiduum, conſiſting chiefly of foſſile alkali. *Monro*, vol. I. p. 85.

5. Cape Clear, *Cork*. Lathers with ſoap. A gallon yields about 30 grains of reſiduum, conſiſting chiefly of foſſile alkali, with a ſmall quantity of ſea-ſalt. *Monro*, vol. I. p. 86.

6. Carrick-moor, *Cavan*. Taſtes ſoft, like Briſtol water; curdles ſoap, and depoſites a white ſediment with *lix. tartari*. Contains an alkaline ſalt, *ſal cath. amar.* and calcareous earth, probably deprived of its fixt air. *Rutty*. *Monro*, vol. I. p. 85.

7. Tober Bony, *Dublin*, four miles north. La-

thers eaſily with ſoap. A gallon yields about 20 grains of reſiduum, conſiſting of an alkaline ſalt and calcareous earth. *Rutty*. *Monro*, vol. I. p. 84.

SALT WATER. Impregnated with a predominant ſea-ſalt. Precipitates ſolutions of ſilver, lead, or mercury, in a white cloud. Its ſalts eaſily diſtinguiſhed, on evaporation, by their cubical cryſtals. When ſimply impregnated, is in no reſpect affected by acids, alkalis, vegetable aſtringents, or ſyrup of violets. Decompoſed by the vitriolic or nitrous acid.

1. Sea-Water. Contains ſea-ſalt in large proportion, calcareous earth, bittern, and a ſmall quantity of oil.

England.

2. **Barrow-dale**, *Cumberland*. Contains a large proportion of ſea-ſalt, ſome calcareous earth, and a little Epſom ſalt. *Short*, vol. II. p. 85. *Rutty*. *Monro*, vol. I. p. 118.

3. **Dortshill**, *Staffordſhire*. Contains ſea-ſalt, calcareous earth, and bittern. *Short*, 8vo. 1765. *Monro*, vol. I. p. 122.

4. **St. Eraſmus's Well**, *Staffordſhire*, on Lord Chetwynd's eſtate. Colour of ſack, with little taſte or ſmell. Contains a ſmall

quantity of ſea-ſalt, ſome earth, and a little Epſom ſalt. *Short*. *Rutty*. *Monro*, vol. I. p. 121.

5. Leamington, *Warwickſhire*. Contains a ſmall proportion of ſea-ſalt, a little calcareous earth, and alſo ſome *ſal cath. amar*. *Short*, vol. II. p. 87. 133. *Rutty*. *Monro*, vol. I. p. 119.

6. Rougham, *Lancaſhire*. Contains a ſmall quantity of ſea-ſalt, ſome calcareous earth, *ſal cath. amar*. and natron. *Short*, vol. II. p. 85. 132. *Rutty*. *Monro*, vol. I. p. 120.

7. Salt Springs, *Cheſhire*. Northwich, Droitwich, Upwich, Middlewich, Namptwich; Barton in Lancaſhire, Weſton in Staffordſhire, &c. *Short*, vol. II. p. 85. *Monro*, vol. I. p. 112. Contain a very large proportion of ſea-ſalt.

Wales.

8. Cargyrle, *Flintſhire*. Contains a ſmall proportion of ſea-ſalt, a little calcareous earth, and *ſal cath. amar*. *Short*, vol. II. p. 86. *Rutty*. *Monro*, vol. I. p. 121.

Ireland.

9. Carrickfergus, *Antrim*. Contains ſome ſea-ſalt, inſoluble earth, and a little Epſom ſalt. *Monro*, vol. I. p. 122.

10. Kilroot, *Antrim*. Contains ſea-ſalt, a large proportion of inſoluble matter, and ſome little Epſom ſalt. *Monno*, vol. I. p. 123.

11. Mahereberg, *Kerry*. Contains ſea-ſalt and Epſom ſalt. *Rutty*. *Smith's Nat. Hiſt. of Kerry*. *Monro*, vol. I. p. 123.

CATHARTIC WATER. Impregnated with a predominant bitter purging ſalt, commonly called by writers on mineral waters, Calcareous Glauber's ſalt, or, with more propriety, Magneſia Glauber's ſalt, or Epſom ſalt; compoſed of vitriolic acid and *magneſia alba*. Precipitates ſolutions of ſilver, lead, or quickſilver, in the nitrous acid, in a yellow cloud. Is not affected by acids, but precipitates with an alkali. Cryſtals reſemble thoſe of Glauber's ſalt.

England.

1. Alford, *Somerſetſhire*. A gallon contains about four ſcruples of Epſom ſalt, about half that quantity of ſea-ſalt, and one ſcruple of calcareous earth. *Guidot*. *Rutty*. *Monro*, vol. I. p. 132.

2. Acton, *Middleſex*. Taſtes bitter and ſaltiſh; a powerful cathartic. Contains Epſom ſalt, and probably ſelenites, beſides ſome calcareous earth. *Rutty*. *Monro*, vol. I. p. 144.

3. Alkerton, *Gloceſterſhire*. Contains a large proportion of Epſom ſalt, calcareous earth, and a little ſea ſalt. *Short*, 8vo, 1765. *Monro*, vol. I. p. 148.

4. Bagnigge, *Middleſex*. A briſk purgative. Contains Epſom ſalt, ſea-ſalt, and calcareous earth. *Bevis Experim. Enquiry*, 1760. *Monro*, vol. I. p. 142.

5. Barnet, *Hertfordſhire*. Contains a large proportion of Epſom ſalt, a little ſea-ſalt, and ſome inſoluble earth. *Rutty*. *Monro*, vol. I. p. 143.

6. Ball-well, *Lincolnſhire*, at Stenfield. Contains Epſom ſalt in ſmall quantity, a conſiderable proportion of earth, and ſome ſea-ſalt. *Short*, vol. I. p. 107. *Monro*, vol. I. p. 149.

7. Comner, *Berkſhire*. Colour whitiſh. Contains Epſom ſalt, ſome calcareous earth, and, according to Rutty, a mixture of natron. *Short*, vol. II. p. 80. *Monro*, vol. I. p. 141.

8. Dog and Duck, *Surry*. A weak cathartic. Contains Epſom ſalt and ſea-ſalt, with one twelfth of the reſiduum of inſoluble matter. *Hale's Phil. Tranſ.* N°. 493. *Rutty*, p. 168. *Monro*, vol. I. p. 136.

9. Dulwich, *Kent*. Clear, ſomewhat brackiſh,

and bitter. Contains Epſom ſalt and ſea-ſalt in nearly equal proportion, and a little calcareous earth. *Rutty*, p. 170. *Monro*, vol. I. p. 133.

10. Epſom, *Surry*. Limpid, with a ſlight ſaline taſte. Contains *ſal cath. amar.* in large proportion, calcareous earth, and probably ſelenites. *Rutty*. *Lucas*. *Allen*. *Monro*, vol. I. p. 146.

11. Hanlys, *Shropſhire*. A ſtrong cathartic. Taſtes ſalt and bitteriſh; contains a large proportion of Epſom ſalt, and ſome inſoluble earth. *Linden Hiſt.* 1768. *Monro*, vol. I. p. 140.

12. Holt, *Wiltſhire*. Limpid, with very little taſte. Contains Epſom ſalt and calcareous earth in nearly equal proportion, and a little ſea-ſalt. *Rutty*. *Monro*, vol. I. p. 134.

13. Kinalton, *Nottinghamſhire*. Clear, ſaltiſh. Contains Epſom ſalt, and a very pure calcareous earth. *Rutty*. *Monro*, vol. I. p. 138.

14. Morton-ſee, *Shropſhire*. A mild purgative. Contains Epſom ſalt and ſome calcareous earth. *Short*, vol. II. p. 81.

15. North-hall, *Hertfordſhire*, near Barnet. Contains a large proportion of Epſom-ſalt, a little ſea-ſalt, and ſome calcareous earth. *Rutty*. *Monro*, vol. I. p. 143.

16. Pancras, *Middleſex*. A mild purgative. Contains Epſom ſalt, a little ſea-ſalt, and ſome inſoluble earth. *Monro*, vol. I. p. 142.

17. Stretham, *Surry*. Curdles with ſoap, and alſo with milk when boiled with it. Contains Epſom ſalt, ſea-ſalt, and ſelenites. *Rutty*. *Monro*, vol. I. p. 135.

18. Sydenham, *Kent*. A mild cathartic. Contains Epſom ſalt, ſea-ſalt, and ſome calcareous earth. *Rutty*. *Monro*, vol. I. p. 138.

19. Nevil Holt, *Leiceſterſhire*, near Market-Harborough. Contains a conſiderable proportion of Epſom ſalt, ſome calcareous earth, ſelenites, fixt air, vitriolic acid, iron, and poſſibly a little alum. *Short*, octavo, 1765. p. 156. *Monro*, vol. I. p. 436. *Rutty*.

Wales.

20. Llandrindod, *Radnor*. Contains Epſom ſalt, ſea-ſalt, and ſome earth. *Linden*. *Monro*, vol. I. p. 149.

Ireland.

21. Carrickfergus, *Antrim*. Colour bluiſh; contains a ſmall quantity of Epſom ſalt, ſome calcareous earth, and a little ſea-ſalt. *Rutty*. *Monro*, vol. I. p. 151.

SULPHUR WATER. Water containing Sulphur *per ſe* diffuſed, or *hepar ſulphuris* diſſolved; of which laſt kind are moſt, if not all, the ſulphur-waters in theſe kingdoms. Strikes a black colour with a ſolution of lead in the nitrous acid, or of *ſacc. ſaturni* in water; tarniſhes ſilver; ſmells like the waſhing of a foul gun; becomes milky with acids.

England.

1. Aſkeron, *Yorkſhire*, near Doncaſter. Perfectly clear; contains much ſulphur, Epſom ſalt, a little ſea-ſalt, and a large proportion of earth. *Short*, vol. I. p. 303. *Monro*, vol. I. p. 212.

2. Bilton, *Yorkſhire*, near Knareſborough. Contains ſulphur, natron, a little ſea-ſalt, and ſome earth. *Short*, vol. I. p. 296. *Rutty*. *Monro*, vol. I. p. 181.

3. Broughton, *Lancaſhire*. Contains a conſiderable proportion of ſulphur, ſea-ſalt, Epſom ſalt, and earth. *Short*, vol. I. p. 300. *Rutty*. *Monro*, vol. I. p. 200.

4. Buglawton, *Cheſhire*, near Congleton. Extremely cold: Contains ſulphur, a ſmall proportion of Epſom ſalt, and a little calcareous earth. *Short*, vol. II. p. 62. *Monro*, vol. I. p. 215.

5. Chadlington, *Oxfordſhire*. Taſtes ſaltiſh; contains ſulphur, natron, a little ſea-ſalt, and ſome earth. *Short*, vol. II. p. 70. *Rutty*. *Monro*, vol. I. p. 181.

6. Crickle, *Lancaſhire*, near Braughton. Contains much ſulphur, ſea-ſalt, Epſom ſalt, and ſome calcareous earth. *Short*, vol. I. p. 300. *Rutty*. *Monro*, vol. I. p. 199.

7. Cunley-houſe, *Lancaſhire*, near Whaley. Colour bluiſh. Contains ſulphur, magneſia Glauber's ſalt, and earth. *Short*, vol. II. p. 60. *Monro*, vol. I. p. 214.

8. Codſall Wood, *Staffordſhire*, near Wolverhampton. Contains a conſiderable quantity of ſulphur, with very little calcareous earth. *Short*, vol. II. p. 63. *Monro*, vol. I. p. 218.

9. Croft, *Yorkſhire*, near the biſhopric of Durham. Clear, ſparkling. Contains ſulphur, much calcareous earth, ſome Epſom ſalt, and a little ſea-ſalt. *Short*, vol. I. p. 299. vol. II. p. 134.

10. Cawley, *Derbyſhire*, near Dranefield. Contains ſulphur, Epſom ſalt, and a little calcareous earth. *Short*, vol. I. p. 305. *Monro*, vol. I. p. 213.

11. Durham, on the north ſide of the river. Contains ſulphur, ſome ſea-ſalt, and a

little

little earth. *Short*, vol. I. p. 305. *Monro*, vol. I. p. 202.

12. Deddington, *Oxfordſhire*, near Banbury. Contains ſulphur, iron, and ſea-ſalt, according to *Short*; but in *Rutty*'s opinion it is a foſſile alkali. If that were the caſe, how happens this foſſile alkali not to expel the iron from its acid, and form Glauber's ſalt?

13. Drig-well, *Cumberland*, near Ravenglas. A clear, briſk water, containing ſulphur and iron. *Short*, vol. II. p. 63. *Monro*, vol. I. p. 453.

14. *Gainſborough*, Lincolnſhire. Contains ſulphur, a little iron, and ſome magneſia Glauber's ſalt. *Short*, vol. II. p. 69. *Monro*, vol. I. p. 454.

15. Harrigate, *Yorkſhire*. Contains a conſiderable proportion of ſulphur and ſea-ſalt, a little magneſia Glauber's ſalt, and ſome earth. *Short*, vol. I. p. 285. *Monro*, vol. I. p. 193.

16. Keddleſton, *Derbyſhire*. Contains a large proportion of ſulphur, with ſea-ſalt and calcareous earth. *Short*, vol. I. p. 305. *Monro*, vol. I. p. 201.

17. Loanſbury, *Yorkſhire*, in Lord Burlington's park. Contains a little ſulphur, Epſom

ſalt, and earth. *Short*, vol. II. p. 61. *Monro*, vol. I. p. 215.

18. Maudſley, *Lancaſhire*, near Preſton. Colour bluiſh; ſaltiſh taſte; contains a large proportion of ſulphur, ſea-ſalt, and a little calcareous earth. *Short*, vol. II. p. 63. *Rutty*. *Monro*, vol. I. p. 198.

19. Nottington, *Dorſetſhire*, near Weymouth. Contains ſulphur, natron, and a little earth. *Rutty*, p. 519. *Monro*, vol. I. p. 183.

20. Normanby, *Yorkſhire*, near Pickering. Clear, but covered with a blue ſcum. Contains much mephitic air, ſome ſulphur, a little bitter purging ſalt, and ſome ſea-ſalt. *Short*, vol. I. p. 299. *Monro*, vol. I. p. 216.

21. Quin Camel, *Somerſetſhire*. Contains ſulphur, natron, a little ſea-ſalt, and ſome earth. *Rutty*. *Monro*, vol. I. p. 182.

22. Rippon, *Yorkſhire*. Contains ſulphur, ſea-ſalt, Epſom ſalt, and a large proportion of earth. *Short*, 8vo, 1765, p. 72. *Monro*, vol. I. p. 203.

23. Sutton-bog, *Oxfordſhire*. A mild cathartic; ſmells extremely fœtid; taſtes ſaltiſh; throws up a blue ſcum. Contains ſulphur, foſſile alkali, ſome ſea-ſalt, and a little

little earth. *Short*, vol. II. p. 70. *Rutty*. *Monro*, vol. I. p. 179.

24. Shattlewood, *Derbyſhire*. Contains a little ſulphur, a good deal of ſea-ſalt, and a ſmall quantity of earth. *Short*, vol. I. p. 304.

23. Skipton, *Yorkſhire*. Contains ſulphur, ſea-ſalt, Epſom ſalt, with ſome earth. *Short*, 8vo, 1765, p. 71. *Monro*, vol. I. p. 203.

26. Shapmoor, *Weſtmoreland*, between Shap and Orton. Contains much ſulphur and Epſom ſalt, with a little ſea-ſalt and earth. *Rutty*. *Monro*, vol. I. p. 217.

27. Thorparch, *Yorkſhire*, above Tadcaſter, on the river Wharf. Contains a little ſulphur, iron, ſea-ſalt, and earth. *Monro*, vol. I. p. 454.

28. Upminſter, *Eſſex*, near Brentwood. Contains much ſulphur, Epſom ſalt, and natron, (according to Dr. Rutty) with ſome earth. *Rutty*. *Monro*, vol. I. p. 218.

29. Wiggleſworth, *Yorkſhire*, near Settle. Black, covered with a white ſcum. Taſtes ſaltiſh; lathers with ſoap. Contains ſulphur, natron, a little ſea-ſalt, and ſome black earth. *Rutty*. *Short*, vol. I. p. 302. *Monro*, vol. I. p. 180.

30. Wardrew, *Northumberland*, on the river Arden. Contains a very conſiderable proportion of ſulphur, a ſmall quantity of ſea-ſalt, and very little earth. *Short*, vol. II. p. 62. *Monro*, vol. I. p. 202.

31. Wirkſworth, *Derbyſhire*. Colour black. Contains a little ſulphur, bitter ſalt, and iron. *Short*, vol. I. p. 307. *Monro*, vol. I. p. 219.

Ireland.

32. Anaduff, *Leitrim*. Contains ſulphur, natron, calcareous Glauber's ſalt, (as we are told) with ſome calcareous earth. *Monro*, vol. I. p. 189.

33. Aphaloo, *Tyrone*. Contains ſulphur, natron, and (according to Rutty) calcareous, or rather magneſia Glauber's ſalt, with a ſuſpicion of a ſmall chalybeate impregnation. *Monro*, vol. I. p. 189.

34. Aſhwood, *Fermanagh*. Contains ſulphur, natron, and Epſom ſalt, as we are told. *Monro*, vol. I. p. 187.

35. Ballynahinch, *Down*. A very clear chalybeate, containing ſome ſulphur, and a neutral ſalt of ſome ſort or other. *Rutty*. *Monro*, vol. I. p. 455.

36. Caſtlemaign, *Kerry*. Contains ſulphur, iron, and a ſalt of ſome ſort. *Rutty*. *Monro*, vol. I. p. 455.

37. Drumgoon, *Fermanagh*. Contains ſulphur, natron, a little ſea-ſalt, and ſome inſoluble matter. *Rutty*. *Monro*, vol. I. p. 183.

38. Derryleſter, *Cavan*. Somewhat lighter than common water. Contains a large proportion of ſulphur, ſome natron, very little ſea-ſalt, and ſome earth. *Rutty*. *Monro*, vol. I. p. 185.

39. Derryhence, *Fermanagh*. Contains ſulphur, natron, and ſea-ſalt. *Rutty*. *Monro*, vol. I. p. 187.

40. Drumaſnave, *Leitrim*. Contains a conſiderable proportion of ſulphur, ſome natron, Epſom ſalt, and inſoluble earth. *Rutty*. *Monro*, vol. I. p. 188.

1. Derrindaff, *Cavan*. Contains ſulphur, ſome Epſom ſalt, and a little earth. *Rutty*. *Monro*, vol. I. p. 220.

42. Killaſher, *Fermanagh*. Contains ſulphur in conſiderable proportion, ſome natron, and alſo ſea-ſalt, together with *ſal cath. amarum*, according to Dr. *Rutty*. *Monro*, vol. I. p. 186.

43. Liſbeak, *Fermanagh*. Contains ſulphur, natron, and a little earth, *Rutty*. *Monro*, vol. I. p. 186.

44. Mechan, *Fermanagh*. Contains ſulphur, natron, and ſea-ſalt. *Rutty*. *Monro*, vol. I. p. 187.

45. Owen Breun, *Cavan*. Contains ſulphur, Epſom ſalt, and a ſmall portion of natron, (according to Dr. *Rutty)* with ſome calcareous earth, and ſomething elſe. *Monro*, vol. I. p. 220.

46. Pettigoe, *Donegal*. Contains a large proportion of ſulphur, Epſom ſalt, and a little earth. *Rutty*. *Monro*, vol. I. p. 221.

47. Swadlingbar, *Cavan*. Generally covered with a bluiſh ſcum. Contains ſulphur, natron, Epſom ſalt, and calcareous earth. *Rutty*. *Monro*, vol. I. p. 184.

Wales.

48. Llandrindod, *Radnor*. Contains ſulphur and ſea-ſalt. *Linden*, *Monro*, vol. I. p. 204.

Scotland.

49. Carſtarphin, near Edinburgh. Contains a little ſulphur, ſea-ſalt, and Epſom ſalt,

with ſome earth, *Short*. *Monro*, vol. I. p. 209.

50. Moffat, *Annandale*. Bluiſh colour; contains a conſiderable proportion of ſulphur, ſea-ſalt, and a little earth. *Plummer*. *Med. Eſſays*, vol. I. art. 8. *Monro*, vol. I. p. 105.

COPPER WATER. Impregnated with copper diſſolved in vitriolic acid. Turns blue with cauſtic volatile alkali. Precipitated by iron.

Ireland.

1. Ballymurtogh, *Wicklow*. A gallon yields ſeven drachms and a half of ſediment on evaporation, from which were obtained green and bluiſh cryſtals, and alſo a little white vitriol, according to Dr. *Rutty*. *Monro*, vol. I. p. 235.

2. Cronebaun, *Wicklow*. Near the laſt, but on the oppoſite ſide of the river Arklow. Yielded, on evaporation of a gallon, four drachms and ſixteen grains of ſediment, which contained blue and green vitriol. *Rutty*. *Monro*, vol. I. p. 236.

HALYBEATE WATER. Iron diſſolved in the vitriolic acid. Strikes a black or purple colour with vegetable aſtringents, eſpecially with the addition of an alkali or lime water. Precipitated by quickſilver, diſſolved in the nitrous acid; alſo by alkaline ſalts.

England.

1. Aſtrope, *Oxfordſhire*, near Banbury. Clear, briſk; contains iron with a little Epſom ſalt, and ſome earth. *Short*, vol. II. p. 45. *Monro*, vol. I. p. 376.

2. Aſwerby, *Lincolnſhire*. Colour bluiſh; contains iron, a large proportion of Epſom ſalt, and ſome calcareous earth. *Short*, vol. I. p. 217. *Monro*, vol. I. p. 388.

3. Birmingham, *Warwickſhire*. A briſk chalybeate, with little ſolid contents. *Short*, vol. II. p. 43. *Monro*, vol. I. p. 274.

4. Buxton, *Derbyſhire*. A cold chalybeate water, containing alſo a little ſea-ſalt and *ſal cath. amarum*. *Short*, vol. I. p. 229. *Monro*, vol. I. p. 357.

5. Burlington, *Yorkſhire*. Contains iron, a little Epſom ſalt, and calcareous earth. *Short*, vol. I. p. 230. *Monro*, vol. I. p. 375.

6. Bournley, *Lancaſhire*. A light chalybeate, with a little Epſom ſalt, and probably ſome ſelenites. *Short*, vol. II. p. 130. *Monro*, vol. I. p. 377.

7. Binley, *Warwickſhire*, near Coventry. A very light chalybeate, containing ſome Epſom ſalt. *Short*, vol. II. p. 45. *Monro*, vol. I. p. 378.

8. Bagnigge, *Middleſex*, near London. Contains iron, Epſom ſalt, earth, and ſome ſelenites. *Bevis*. *Monro*, vol. I. p. 399.

9. Carlton, *Nottinghamſhire*. A very light water impregnated with iron diſſolved in vitriolic acid. *Short*, vol. II. p. 40. *Monro*, vol. I. p. 266.

10. Colurian, *Cornwall*. A chalybeate water the contents of which are not well known. *Borlaſe*. *Monro*, vol. I. p. 271.

11. Cannock, *Staffordſhire*. A very light chalybeate. *Short*, vol. II. p. 43. *Monro*, vol. I. p. 274.

12. Cobham, *Surry*. Contains iron with a ſmall quantity of ſea-ſalt. A gallon yields but ſeven grains of reſiduum. *Monro*, vol. I. p. 355.

13. Chippenham, *Wiltſhire*. Contains iron and ſea-ſalt. *Rutty*. *Monro*, vol. I. p. 359.

14. Cawthorp, *Lincolnſhire*, near Bounre. Contains iron, with a large proportion of ſea-ſalt, a little Epſom ſalt, and probably ſome ſelenites. *Short*. vol. I. p. 225. *Monro*, vol. I. p. 362.

15. Coventry, *Warwickſhire*. A light chalybeate, containing alſo a little Epſom ſalt. *Short*. *Monro*, vol. I. p. 376.

16. Cheltenham, *Gloceſterſhire*. Contains iron diſſolved in a volatile acid, a large proportion of Epſom ſalt and calcareous earth, ſome ſelenites, and probably fixt air. *Lucas*. *Rutty*. *Short*. *Monro*, vol. I. p. 395.

17. Derby, *Derbyſhire*. A ſtrong chalybeate, containing alſo a large proportion of ſea-ſalt. *Short*, vol. II. p. 48. *Monro*, vol. I. p. 362.

18. Dorſthill, *Staffordſhire*. A briſk chalybeate, containing alſo ſea-ſalt, Epſom ſalt, and bittern. *Monro*, vol. I. p. 365.

19. Felſtead, *Eſſex*. A light chalybeate. *Allen*. *Monro*, vol. I. p. 269.

20. Filah, *Yorkſhire*, near Scarborough. Colour whitiſh; contains, beſides iron, a conſiderable proportion of ſea-ſalt, ſome Epſom ſalt, calcareous earth, and probably much fixt air. *Short*, vol. I. p. 289. *Monro*, vol. I. p. 364.

21. Hampſtead, *Middleſex*. A pure chalybeate, containing a ſmall proportion of iron diſſolved in a fixt vitriolic acid, with probably a little ſea-ſalt. *Soam*, 1734. *Boyle*. *Monro*, vol. I. p. 264.

22. Harrigate, *Yorkſhire*. *Sweet ſpaw*: Lighter than common water; contains iron diſſolved in vitriolic acid partly fixt, with ſome earth. *Tuewhet well*: Lighter than the former, containing more iron, diſſolved in a more volatile acid, together with a greater proportion of earth. *Short*. *Monro*, vol. I. p. 271.

23. Hartlepool, *Bpk. of Durham*. Contains iron in a volatile acid, with a good deal of Epſom ſalt and calcareous earth; alſo ſome ſea-ſalt, and poſſibly a little ſulphur. *Short*, vol. II. p. 59. *Monro*, vol. I. p. 380.

24. Hanlys, *Shropſhire*, near Shrewſbury. Contains iron, with a large proportion of Epſom ſalt and calcareous earth. *Linden*. *Monro*, vol. I. p. 402.

25. Iſlington, *Middleſex*. A very light water impregnated with iron diſſolved in a volatile vitriolic acid. A gallon yields about a ſcruple of reddiſh earth. *Boyle*. *Linden*. *Monro*, vol. I. p. 267.

26. Ilmington, *Warwickſhire*. Clear, briſk. Contains iron and a ſalt, concerning which authors differ. *Durham*, 1685. *Short*, vol. II. p. 129. *Monro*, vol. I. p. 302.

27. Jeſſop, *Surry*. A weak chalybeate, containing a very large proportion of Epſom ſalt, and poſſibly a little ſea-ſalt. *Hales*, *Phil. Tranſ.* Numb. 495. *Rutty*. *Monro*, vol. I. p. 400.

28. Knowſley, *Lancaſhire*. Contains iron, with a very little Epſom ſalt, and probably ſome fixt air, with a ſmall proportion of ſelenites. *Short*, vol. II. p. 129. *Monro*, vol. I. p. 375.

29. King's Cliff, *Northamptonſhire*. Contains iron, with much Epſom ſalt, and ſome earth. *Short*. *Rutty*. *Monro*, vol. I. p. 379.

30, Kerby, *Weſtmoreland*, near Appleby. Contains iron, Epſom ſalt, with a good deal of earth. *Short*, vol. II. p. 132. *Rutty*. *Monro*, vol. I. p. 384.

31. Leez, *Eſſex*. Impregnated with iron diſſolved in a volatile vitriolic acid. *Allen*. *Monro*, vol. I. p. 268.

32. Lincomb, *Somerſetſhire*, near Bath. Contains iron, and, according to Dr. Hillary, both natron and Epſom ſalt. *Monro*, vol. I. p. 305.

33. Latham, *Lancaſhire*. Clear, containing iron, ſea-ſalt, and earth. *Short*. *Monro*, vol. I. p. 358.

34. Lancaſter, *Lancaſhire*. Contains iron, ſea-ſalt, and probably ſelenites. *Short*, vol. II. p. 130. *Monro*, vol. I. p. 360.

35. Marks-hall, *Eſſex*. Becomes red with galls, which colour is ſaid to diſappear in two days, but without any precipitation. *Allen*. *Monro*, vol. I. p. 268.

36. Malvern, *Gloceſterſhire*. Contains iron diſſolved in a volatile vitriolic acid. Evaporated two quarts yielded one grain of earth, one of iron, and one of bittern. *Wall*. *Monro*, vol. I. p. 270.

37. Moſs Houſe, *Lancaſhire*, near Maudſley. A briſk light chalybeate; a gallon yielded on evaporation 23 grains of reſiduum, five of which were a ſalt of ſome ſort or

other. *Short*, vol. II. p. 38. *Monro*, vol. I. p. 274.

38. Malton, *Yorkſhire*. A ſtrong chalybeate, containing alſo a conſiderable quantity of Epſom ſalt and earth, with fixt air and ſelenites. *Liſter*. *Short*. *Monro*, vol. I. p. 386.

39. Newham Regis, *Warwickſhire*. Contains iron and Epſom ſalt, with ſome calcareous earth. *Short*. *Monro*, vol. I. p. 378.

40. Orſton, *Nottinghamſhire*. Clear, pleaſant, containing iron diſſolved probably by means of fixt air, with a large proportion of earth, together with Epſom ſalt and ſome ſea-ſalt. *Short*, vol. I. p. 222. *Monro*, vol. I. p. 382.

41. Road, *Wiltſhire*. Contains iron, and, according to the following Doctors, a large quantity of natron, alſo ſome ſea-ſalt. *Williams*. *Clark*. *Rutty*. *Monro*, vol. I. p. 306.

42. Shadwell, *Middleſex*, near London. A very ſtrong chalybeate; a gallon yields two ounces and three drachms of ſalt of ſteel, and three drachms of a yellowiſh brown earth. *Rutty*. *Monro*, vol. I. p. 247.

43. Sene, or Send, *Wiltſhire*, near the Devizes. A ſtrong chalybeate: Its acid ſeems fixt. *Guidott, an.* 1691. p. 405. *Monro*, vol. I. p. 275.

44. Stanger, *Cumberland*, two miles from Cockermouth. Contains a good deal of iron, a large quantity of ſea-ſalt, and probably ſome ſelenites. *Short*, vol. II. p. 132. *Monro*, vol. I. p. 366.

45. Stenfield, *Lincolnſhire*. Clear, light, briſk. Contains iron in a fixt acid, with a large proportion of Epſom ſalt and earth, together with a little ſea-ſalt, and probably ſome ſelenites. *Short*, vol. I. p. 214. *Monro*, vol. I. p. 383.

46. Scarborough, *Yorkſhire*. Contains iron in a volatile acid, with a conſiderable proportion of Epſom ſalt, and calcareous earth, ſome ſelenites and fixt air. *Shaw*, *Enq. an.* 1734. *Atkins*. *Short*, vol. I. p. 174. *Lucas*. *Monro*, vol. I. p. 389.

47. Stockport, *Lancaſhire*. A gallon yielded, on evaporation, twelve grains of ochre, and the ſame quantity of a mixture of ſea-ſalt and Epſom ſalt. *Short*, vol. II. p. 130. *Monro*, vol. I. p. 357.

48. Tunbridge, *Kent*. Contains iron diſſolved in a volatile vitriolic acid, ſome ſea-ſalt,

with a little ſelenites and calcareous earth. According to Dr. Lucas, a gallon yields 30 grains of reſiduum. *Lucas*. *Liſter*. *Rutty*. *Monro*, vol. I. p. 355.

49. Thetford, *Norfolk*. Contains iron, and, according to the following Doctor, a pure alkaline ſalt. *Manning*, *de aq. min*. *Monro*, vol. I. p. 304.

50. Tibſhelf, *Lancaſhire*. Contains iron in a volatile acid, with a conſiderable proportion of ſea-ſalt, a little Epſom ſalt, and ſome calcareous earth. *Short*, vol. I. p. 226. *Monro*, vol. I. p. 358.

51. Townly, or Hanbridge, *Lancaſhire*. Contains iron and Epſom ſalt. *Short*, vol. II. p. 133. *Monro*, vol. I. p. 377.

52. Thurſk, *Yorkſhire*. Contains iron, Epſom ſalt, calcareous earth, a little ſea-ſalt, and probably fixt air. *Short*, vol. I. p. 226. *Monro*, vol. I. p. 380.

53. Thornton, *Nottinghamſhire*, near Newark. Contains iron, with Epſom ſalt and a great deal of earth. *Short*. *Monro*, vol. I. p. 381.

54. Tarleton, *Lancaſhire*. Contains a little iron, a large proportion of Epſom ſalt and calcareous

calcareous earth, a good deal of ſea-ſalt, a little ſulphur, and poſſibly ſome ſelenites. *Short*, vol. II. p. 54. *Monro*. vol. I. p. 385.

55. Weſtwood, *Derbyſhire*, near Tanderſley. Yields pure cryſtals of green vitriol. *Short*, vol. I. p. 283. *Monro*, vol. I. p. 248.

56. Wellenborough, *Northamptonſhire*. Lighter than common water. Contains iron, &c. *Allen*. *Monro*, vol. I. p. 269.

57. Wigan, *Lancaſhire*. Contains ſome iron and a little Epſom ſalt. *Short*, vol. II. p. 30. *Monro*, vol. I. p. 275.

58. Witham, *Eſſex*. Contains iron, ſea-ſalt, Epſom ſalt, and calcareous earth. *Taverner*. *Monro*, vol. I. p. 359.

59. White-acre, *Lancaſhire*, near Trales. Contains iron, ſea-ſalt, and probably ſelenites. *Short*. *Monro*, vol. I. p. 360.

60. Weſt-Aſhton, *Wiltſhire*. A weak chalybeate, containing a large proportion of ſea-ſalt and Epſom ſalt, with ſome earth. *Rutty*. *Monro*, vol. I. p. 361.

61. Weatherſlack, *Weſtmoreland.* A weak chalybeate, containing a very large proportion of ſea-ſalt, probably a little Epſom ſalt, and a very ſmall quantity of ſulphur, together with ſome earth. *Short*, vol. II. p. 182. *Rutty. Monro*, vol. I. p. 363.

Ireland.

62. Ardarick, *Cork*, two miles and a half ſouth-eaſt of the city. *Smith*, vol. II. p. 276.

63. Athlone, *Roſcommon.* Contains a little iron and Epſom ſalt. *Rutty. Monro*, vol. I. p. 404.

64. Bandon, *Cork.* A chalybeate of conſiderable ſtrength. *Smith*, vol. II. p. 271.

65. Ballyvourney, *Cork*, on the north bank of the river Sullane. A ſtrong chalybeate. *Smith*, vol. II. p. 272.

66. Bearforeſt, *Cork*, a mile ſouth of Mallow. A pretty ſtrong chalybeate. *Smith*, vol. II. p. 274.

67. Ballycaſtle, *Antrim.* Contains iron in a fixt acid, calcareous earth, and a little ſulphur. *Monro*, vol. I. p. 279.

68. Ballyſpellan, *Tipperary*, eight miles from Kilkenny. Contains a little iron in a volatile acid. *Monro*, vol. I. p. 282.

69. Caſtle Townſhend, *Cork*, on the road to Skibbereen. A ſtrong chalybeate, containing alſo a little ſulphur. *Smith*, vol. II. p. 268.

70. Cronacree, *Cork*, near Doneraile. A weak chalybeate. *Smith*, vol. II. p. 272.

71. Carrignacurra, *Cork*, near Inchiguelagh. A ſtrong chalybeate. *Smith*, vol. II. p. 272.

72. Croſstown, *Waterford*. A gallon yields, on evaporation, 40 grains of a greeniſh white ſediment of an acrid ferruginous taſte. *Rutty*. *Monro*, vol. I. p. 253.

73. Caſhmore, *Waterford*. A gallon yields 48 grains of vitriol. *Monro*, vol. I. p. 254.

74. Coolauran, *Fermanagh*. Contains iron in a fixt acid, and a little Epſom ſalt. *Rutty*. *Monro*, vol. I. p. 278.

75. Caſtleconnel, *Limeric*. Contains iron, ſea-ſalt, calcareous earth, and probably a little ſelenites. *Rutty*. *Martin*. *Monro*, vol. I. p. 367.

76. Drumraſtle, *Cork*, near Dunmanway. Contains a ſmall proportion of iron diſſolved in a volatile acid. *Smith*, vol. II. p. 268.

77. Dunnard, eighteen miles from *Dublin*. Contains iron and a very ſmall proportion of ſaline matter. *Rutty*. *Monro*, vol. I. p. 281.

78. Five-mile Bridge, *Cork*, in the road to Kinſale. A ſtrong chalybeate, containing alſo a little ſulphur. *Smith*, vol. II. p. 269.

79. Glanagarin, *Cork*, near Caſtlemartyr. Contains a little iron in a volatile acid. *Smith*, vol. II. p. 268.

80. Garret's-town, *Cork*. Contains iron in a fixt acid, and ſome ſalt. *Smith*, vol. II. p. 270.

81. Glanmile, near Naul. Contains iron diſſolved in a volatile acid, and a little Epſom ſalt. *Monro*, vol. I. p. 279.

82. Granſhaw, *Downe*. Contains much iron, ſome ſea-ſalt, and earth. *Rutty*. *Monro*, vol. I. p. 309.

83. Galway, near the town. Contains iron in a volatile acid, a large proportion of ſea-

ſalt, ſome Epſom ſalt, and ſelenites. *Rutty*. *Monro*, vol. I. p. 370.

84. Kilindonnel, *Cork*, two miles N. by E. from the city. A ſtrong chalybeate. *Smith*, vol. II. p. 272.

85. Kilpadder, *Cork*. A pretty ſtrong chalybeate. *Smith*, vol. II. p. 274.

86. Killbrew, *Meath*. A gallon yielded, on evaporation, 1500 grains of ſediment, chiefly vitriol of iron; ſuppoſed alſo to contain ſome copper and a little alum. *Rutty*. *Monro*, vol. I. p. 255.

87. Kanturk, *Cork*, Contains iron, ſome ſulphur, and probably a little Epſom ſalt. *Rutty*. *Monro*, vol. I. p. 280. *Smith*, vol. II. p. 269.

88. Kilinſhanvally, *Fermanagh*. Contains iron in a fixt acid, with a little Epſom ſalt and calcareous earth. *Rutty*. *Monro*, vol. I. p. 405.

89. Lis-done-varna, *Clare*. Contains a conſiderable proportion of iron, and, as ſome imagine, a little ſulphur, natron, and copper. *Rutty*. *Monro*, vol. I. p. 307.

90. Macroomp, *Cork*. Contains iron, and natron, according to Dr. *Rutty*. A gallon

yielded only eight grains of ſediment. *Smith*, vol. II. p. 275. *Monro*, vol. I. p. 308.

91. Mount Pallas, *Cavan*. Contains iron in a volatile acid, with ſome Epſom ſalt and calcareous earth. *Rutty*. *Monro*, vol. I. p. 405.

92. Nobler, *Meath*. A gallon is ſaid to yield 170 grains of reſiduum, moſt of which, we are told, is vitriol of iron. *Rutty*. *Monro*, vol. I. p. 254.

93. Newton Stewart, *Tyrone*, near Caſtle-hill. Contains iron in a fixt vitriolic acid, ſome ſea-ſalt, Epſom ſalt, and earth. *Rutty*. *Monro*, vol. I. p. 370.

94. Roſtillan, *Cork*. A pretty ſtrong chalybeate. *Smith*, vol. II. p. 268.

95. Ship Pool, *Cork*, ſeven miles from the city. A ſtrong chalybeate. *Smith*, vol. II. p. 273.

96. Timoleague, *Cork*. A weak chalybeate. *Smith*, vol. II. p. 271.

97. Tralee, *Kerry*. Contains iron, ſea-ſalt, and abſorbent earth. *Rutty*. *Monro*, vol. I. p. 368.

98. Wexford. Contains iron, a very little Epſom ſalt, and ſome calcareous earth. *Rutty. Monro*, vol. I. p. 281.

Wales.

99. Llandrindod, *Radnor.* Contains a conſiderable proportion of iron in a volatile acid, and probably a neutral ſalt. *Linden. Monro*, vol. I. p. 276.

100. Swanſea, *Glamorganſhire.* A gallon yielded 30 grains of green vitriol, and 8 grains of calcareous earth. *Rutty. Monro*, vol. I. p. 249.

Scotland.

101. Aberbrothock. A weak chalybeate. *Monro*, vol. I. p. 278.

102. Dunſe. Contains a little iron, ſea-ſalt, and bittern. *Home. Monro*, vol. I. p. 366.

103. Glendy, *Mairn.* A chalybeate of moderate impregnation. *Monro*, vol. I. p. 278.

104. Hartfell, *Annandale.* A gallon evaporated yields about 30 grains of ſalt of ſteel, and 3 or 4 grains of earth. *Med. Eſſays*, vol. I. art. 12. *Monro*, vol. I. p. 250.

105. Peterhead, *Aberdeen*. A ſtrong chalybeate, *Monro*, vol. I. p. 278.

ALUMINOUS WATER.

Changes vegetable blues red, even after ſtanding ſome time in the open air; effervеſces with alkalies, and is decompoſed; precipitating in floculi.

1. Somerſham, *Huntingdonſhire*. Said to contain alum, iron, calcareous earth, and ſelenites. *Layard*. *Phil. Tranſ.* vol. LVI. *Morris*. *Monro*, vol. I. p. 432.

WARM WATERS.

1. Bath, *Somerſetſhire*. Lighter than rain-water. Contains a very ſmall proportion of iron in a volatile vitriolic acid, very little ſea-ſalt, *hepar ſulpuris e calce viva*, ſelenites and fixt air. Raiſes Fahrenheit's thermometer to 119 degrees. *Lucas*. *Falconer*. *Linden*. *Sutherland*. *Rutty*. *Charlton*. *Hillary*. *Monro*, vol. II. p. 233.

2. Matlock, *Derbyſhire*. Raiſes Fahrenheit's thermometer to about 70. Lighter than rain-water. Contains a very ſmall proportion of Epſom ſalt, and calcareous earth. *Short*. *Monro*, vol. II. p. 261.

3. Briſtol, *Somerſetſhire.* Raiſes Fahrenheit's thermometer to 80. Lighter than rain-water. Contains, in ſmall proportion, Glauber's ſalt, Epſom ſalt, calcareous earth, and fixt air. *Lucas. Sutherland. Rutty. Monro*, vol. II. p. 369.

4. Buxton, *Derbyſhire.* Raiſes Fahrenheit's thermometer to 90. Lighter than rain-water. Contains, in ſmall proportion, ſea-ſalt, Epſom ſalt, and calcareous earth. *Short. Monro*, vol. II. p. 378.

5. Mallow, *Cork.* Raiſes Fahrenheit's thermometer to 68. Lathers well with ſoap. Contains a ſmall proportion of ſea-ſalt, Epſom ſalt, and calcareous earth. *Rutty. Monro*, vol. II. p. 386. *Smith*, vol. II. p. 276.

PETRIFYING WATER. Contains calcareous earth either diſſolved in the vitriolic acid in form of ſelenites, or ſuſpended, in the ſtate of quick-lime, being deprived of its fixt air. If the firſt, it precipitates with mild or cauſtic alkalies; if the ſecond, with mild alkali only.

1. Ball or Band Well, *Lincolnſhire*, near Henfield. Contains alſo Epſom ſalt, and ſea-ſalt. *Short*, vol. I. p. 107. *Monro*, vol. I. p. 464.

2. Cave, *Fife*, Scotland. *Sibbald*, *Phil. Tranſ. Abridg*. vol. II. p. 325. *Monro*, vol. I. p. 468.

3. Chinkwell, *Dublin*. *Rutty*. *Monro*, vol. I. p. 470.

4. Glevely, *Roſs*, Scotland. *Monro*, vol. I. p. 468.

5. Hermitage, *Dublin*. Contains alſo a little Epſom ſalt. *Monro*, vol. I. p. 470.

6. Howth, *Dublin*. Contains alſo ſome ſea-ſalt. *Rutty*. *Monro*, vol. I. p. 469.

7. Llangybi, *Carnarvonſhire*, Wales. Examined by Dr. *Linden* only, from whoſe report it is impoſſible to know what it contains. *Monro*, vol. I. p. 466.

8. Loggſhiny, *Dublin*. *Rutty*. *Monro*, vol. I. p. 469.

9. Knareſborough, *Yorkſhire*. Contains, beſides a conſiderable proportion of earth, a good deal of Epſom ſalt. *Short*, vol. I. p. 106. *Monro*, vol. I. p. 464.

THE END.

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2. Cave, Fife, Scotland. Sibbald, Phil. Tranf. Abridg. vol. II. p. 344. Archæol. vol. I. p. 488.

3. Chislehurst, [illegible] Kent. Archæol. vol. I. p. 470.

4. [illegible], Fife, Scotland. Archæol. vol. I. p. 468.

5. [illegible] [illegible]. Contains also a little fo[illegible] Archæol. vol. I. p. 296.

6. Heath, [illegible]. Contains also some [illegible]

7. [illegible] [illegible] [illegible]. Examined by Dr. [illegible] [illegible] [illegible] it is impossible to know what it contains. Archæol. vol. II. p. 291.

8. [illegible] [illegible] [illegible]

9. [illegible] [illegible] [illegible] [illegible] [illegible] proportion [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

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